

**WESTBOROUGH WATER DISTRICT**

**URBAN WATER MANAGEMENT PLAN**

**2010 - 2015**

WESTBOROUGH WATER DISTRICT  
2263 Westborough Boulevard  
South San Francisco, CA 94083



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2263 Westborough Boulevard  
P. O. Box 2747  
South San Francisco, CA 94083-2747

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# TABLE OF CONTENTS

	<b>PAGE</b>
I. Introduction	1
II. Plan Preparation	3
A. Public Participation	3
B. Interagency Coordination	3
III. Description of the Westborough Water District	5
A. Location and Size	5
B. Climate	5
C. Service Area Population	10
D. Water Supply Sources	11
E. Local Storage	13
F. Reliability of Supply	13
G. Water Quality	16
H. Exchanges with Other Agencies	17
I. Planned Water Supply Projects and Programs	17
IV. Past and Current Water Use – Baselines and Targets	18
A. Water Production	18
B. Water Sales and Unmetered Water	19
C. Water Sales by User Category	22
D. Baseline Water Consumption	23
E. Water Use Targets	24
V. Projected Water Demand and Reliability	26
A. Projected Water Demand	26
B. Drought Scenarios	28
C. Reliability of the Regional Water System	31
VI. Water Shortage Contingency Plan	38
A. Introduction	38
B. Water Supply Emergency Response	39
C. Water Supply Shortages	40
VII. Urban Water Management Plan Programs	45
A. Introduction	45
B. Preexisting Water Conservation Programs	45
C. Demand Management Programs - 2010 - 2015	48
D. Wastewater Disposal and Wastewater Reclamation Opportunities	56

E. Implementation Program and Schedule	57
Appendix A: DWR Checklist	58
Appendix B: Baseline Calculations	
Appendix C: SFPUC Emergency Response Planning	
Appendix D: Sample Water Rationing Plan	
Appendix E: Notices and Resolution of Adoption	

## FIGURE LIST

1. District Location	7
2. District Boundaries	8
3. System Map	9
4. Hetch Hetchy Regional Water System	11
5. Gallons Per Capita Per Day 1986-2010	19

## LIST OF TABLES

1. Coordination and Public Involvement	4
2. Climate Data	6
3. Population Projections	10
4. Westborough Water District Treated Water Storage Facilities	13
5. Annual Supply Limits	15
6. Water Production	18
7. Water Sales and Unmetered Water	20
8. Water Transfers to Other Agencies	20
9. Water Sales and Services	22
10. Ten-Year Baseline Water Use	24
11. Five-Year Baseline Water Use	24
12. Projected Water Demand	27
13. Tier One Drought Allocations	29
14. Drought Scenarios – 2010 Demand Level	31
15. Recent Water Deliveries in SFPUC Service Area	34
16. Supply and Demand Comparisons – Normal and Drought Scenarios	41
17. Water Shortage Responses	42
18. Implementation Plan Summary	58

# I. INTRODUCTION

This report has been prepared in compliance with the Urban Water Management Planning Act, as amended.<sup>1</sup> It updates the Westborough Water District's existing *Urban Water Management Plan*.<sup>2</sup>

This is the fourth *Urban Water Management Plan* to be prepared by the District<sup>3</sup> under the terms of AB 797 (1983) and subsequent amending legislation. This Plan also includes a *Water Shortage Contingency Plan* as required under the provisions of AB 11X of (1991) and addresses changes required by subsequent legislation including the Water Conservation Act of 2009 (SB7X-7). The Plan also incorporates the water conservation initiatives, which the District has adopted under the terms of the *Memorandum of Understanding Regarding Urban Water Conservation in California*, to which the District is a signatory.

This Plan will be presented to the Water District's Board of Directors who will conduct a public hearing prior to adoption. Once adopted it will supersede the existing plan prepared in 2005, and will be filed with the Water Efficiency Office in the Department of Water Resources, the California State Library, the Bay Area Water Supply and Conservation Agency (BAWSCA), the San Francisco Public Utilities Commission (SFPUC), San Mateo County and the City of South San Francisco, as required by law, and will be used by the District staff to guide the District's water conservation efforts through the year 2015.

## ACRONYMS AND ABBREVIATIONS USED IN THIS REPORT

ABAG - Association of Bay Area Governments
AF - Acre Feet (1 AF = 325,851 gallons)
AFY - Acre Feet per Year
BAWSCA - Bay Area Water Supply and Conservation Agency
BMP - Best Management Practice
CII - Commercial, Industrial and Institutional
CIMIS - California Irrigation Management Information System
CUWCC - California Urban Water Conservation Council
DMM - Demand Management Measure
EOC - Emergency Operations Center
Eto - Evapo-transpiration rate
hcf unit - A billing unit of 100 cubic feet or 748 gallons
gpcd - Gallons per capita per day
ISA - Interim Supply Allocation
ISG - Individual Supply Guarantee
mg - million gallons
mgd - million gallons a day
MOU - Memorandum of Understanding
PEIR - Program Environmental Impact Report
RWS - Regional Water System; also Hetch-Hetchy System
SFPUC - San Francisco Public Utilities Commission
WSA - Water Supply Agreement
WCIP - Water Conservation Implementation Plan
WSAP - Water Shortage Allocation Plan
WWD - Westborough Water District

<sup>1</sup> California Water Code, Division 6, Part 2.6; §10610, et. seq. Established by Assembly Bill 797 (1983).

<sup>2</sup> Westborough Water District, *Urban Water Management Plan - 2005-2010*, adopted December 2005.

<sup>3</sup> Throughout this report the Westborough Water District may be referred to variously as the "District", "WWD", and the "Water District" as well as by its proper name.

## **II. PUBLIC PARTICIPATION AND INTERAGENCY COORDINATION**

### **A. PUBLIC PARTICIPATION**

The Westborough Water District provided a notice of preparation of this *Urban Water Management Plan* to all customers through its newsletter, *The Water Faucet*, in March 2011. In May and June, 2011 the District published notices of its Public Hearing on the Draft UWMP in the San Mateo Times. These notices were published to encourage the involvement of diverse social, cultural, and economic elements of the service area population. A public hearing was scheduled for June 9, 2011 at the District's office in South San Francisco, to receive comments on the Plan prior to its final adoption by the Board of Directors. The full UWMP, including the District's implementation plan for the Water Conservation Act of 2009 (SB7-x7), was to be discussed at the public hearing. Documentation related to the notices and adoption of the plan is found in Appendix E.

### **B. INTERAGENCY COORDINATION**

#### **1. BAY AREA WATER SUPPLY AND CONSERVATION AGENCY**

The Water District is a member of BAWSCA, Bay Area Water Supply and Conservation Agency. BAWSCA was created on May 27, 2003 to represent the interests of 26 cities and water districts, a water company, and a university, in Alameda, Santa Clara and San Mateo counties that purchase water on a wholesale basis from the San Francisco Regional Water System (RWS). Collectively the BAWSCA agencies are referred to as the Wholesale Customers.

BAWSCA is the only entity that has the authority to directly represent the needs of the cities, wholesale customers that depend on the RWS. Through BAWSCA the wholesale customers can work with the San Francisco Public Utilities Commission (SFPUC) on an equal basis to ensure the RWS is rehabilitated and maintained to collectively and efficiently meet local responsibilities.

BAWSCA has the authority to coordinate water conservation, supply and recycling activities for its agencies; acquire water and make it available to other agencies on a wholesale basis; finance projects, including improvements to the regional water system; and build facilities jointly with other local public agencies or on its own to carry out the agency's purposes.

Compliance with the Urban Water Management Planning Act lies with each agency that delivers water to its customers. In this instance, the responsibility for completing an UWMP lies

with the Westborough Water District. BAWSCA's role in the development of the 2010 UWMP updates is to work closely with its member agencies and the SFPUC to maintain consistency among the multiple documents being developed.

## 2. OTHER AGENCIES

All land use planning and development approvals within the Westborough Water District's boundaries are the responsibility of the City of South San Francisco. The Water District provides for sewage collection within its boundaries, while wastewater treatment is provided by the North San Mateo County Sanitation District.<sup>1</sup> Fire suppression services are provided by the City of South San Francisco. The coordination with these agencies is summarized in Table 1.

TABLE 1 COORDINATION AND PUBLIC INVOLVEMENT				
Agency	Was sent a Notice of Preparation	Was contacted for Assistance	Was sent a copy of the Draft Plan	Was sent a Notice of Intention to Adopt
BAWSCA	✓	✓	✓	✓
City of South San Francisco	✓	✓	✓	✓
San Mateo County	✓		✓	✓
San Francisco Public Utilities Commission		✓	✓	✓
North San Mateo County Sanitation District	✓	✓	✓	✓

<sup>1</sup>The North San Mateo County Sanitation District is a subsidiary of the City of Daly City.

# **III. DESCRIPTION OF THE WESTBOROUGH WATER DISTRICT**

## **A. LOCATION AND SIZE**

The Westborough Water District serves the Westborough area of South San Francisco. It is located in northern San Mateo County, about 9 miles south of San Francisco. Westborough was developed shortly before Interstate 280 was built in the 1970s and is primarily a residential community with local-serving commercial uses. It encompasses about 1 square mile of land. Figure 1 is a map of South San Francisco with the Westborough District highlighted. Figure 2 is the land use map for the Westborough District from the South San Francisco General Plan, and Figure 3 is the District's system map.

The District was formed in 1961 under the County Water District Act of California. Most of the land within the District was developed in the 1960s and early 1970s. The District contracts with the San Francisco Water Department to purchase water wholesale, from the City's large regional (Hetch Hetchy) system. WWD has no locally developed surface or groundwater supplies, and no recycled water or desalinated water is distributed in its service area by the District or others.

The District is located on the eastern slopes of the coastal mountains overlooking San Bruno Mountain, South San Francisco and San Francisco Bay, and features hilly terrain, with elevations ranging from 400 to 600 feet above sea level.

## **B. CLIMATE**

The Westborough community has a semi-arid Mediterranean coastal climate typified by cool summers and mild winters. The warmest months of the year are August and September, and the coldest are December and January. As shown in Table 2, the average daily maximum temperature in September at the nearby San Francisco Airport weather monitoring station is 73.5°. The average minimum temperature in January is 42.5°.

The average annual precipitation is 20.00 inches, virtually all of which is rainfall, with about 97 percent falling between November and April. Rainfall amounts vary widely from year to year, with a low of 8.73 inches in 1976 and a high of 43.75 inches in 1983.

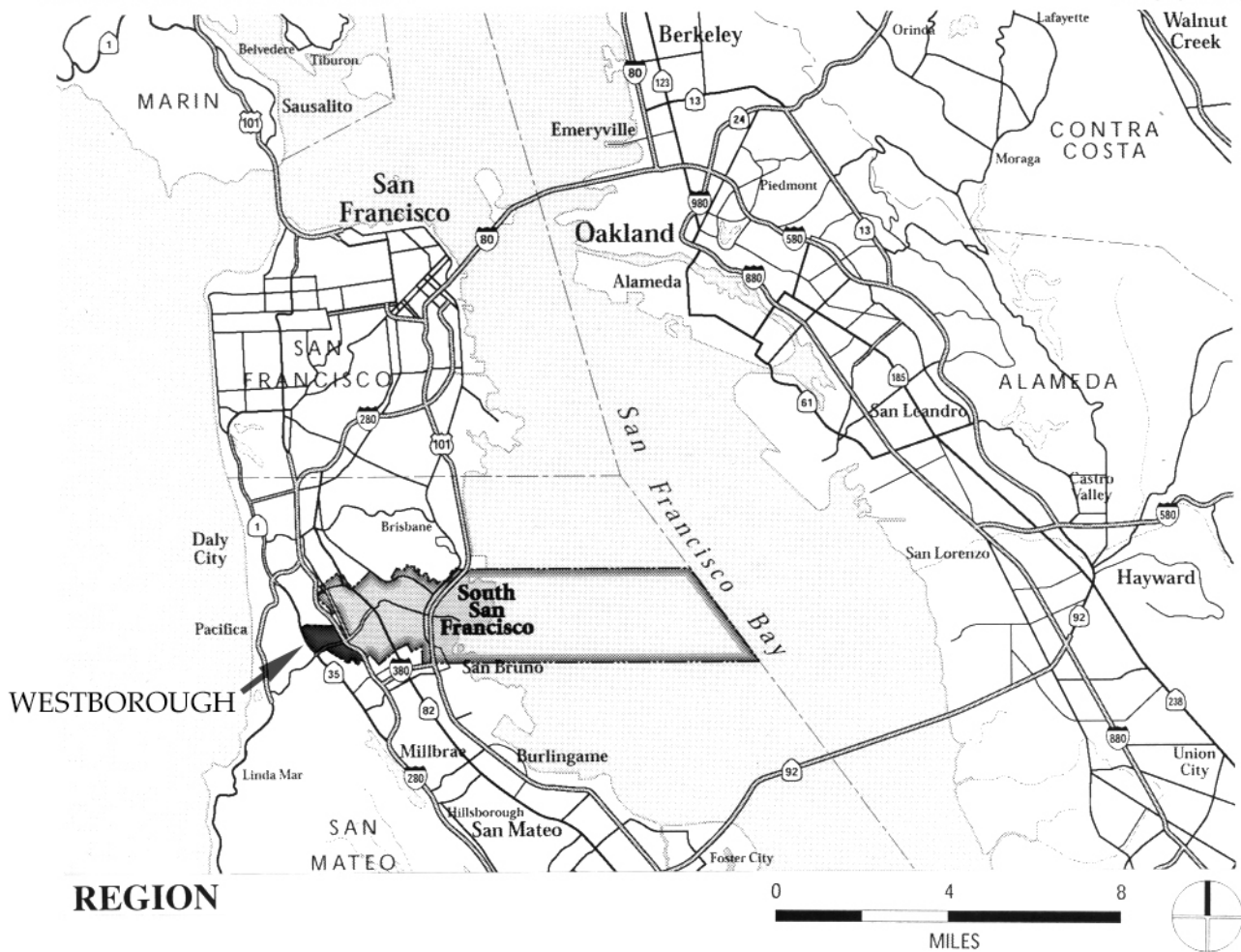
Relative to most of the State, the evapo-transpiration rate is low, particularly during the summer months. Urban water consumption in the San Francisco Bay hydrologic region is among the lowest in the State, estimated to average 157 gallons per capita per day (gpcd) compared to the statewide average of 192 gpcd.

**TABLE 2**  
**WESTBOROUGH WATER DISTRICT CLIMATE DATA**

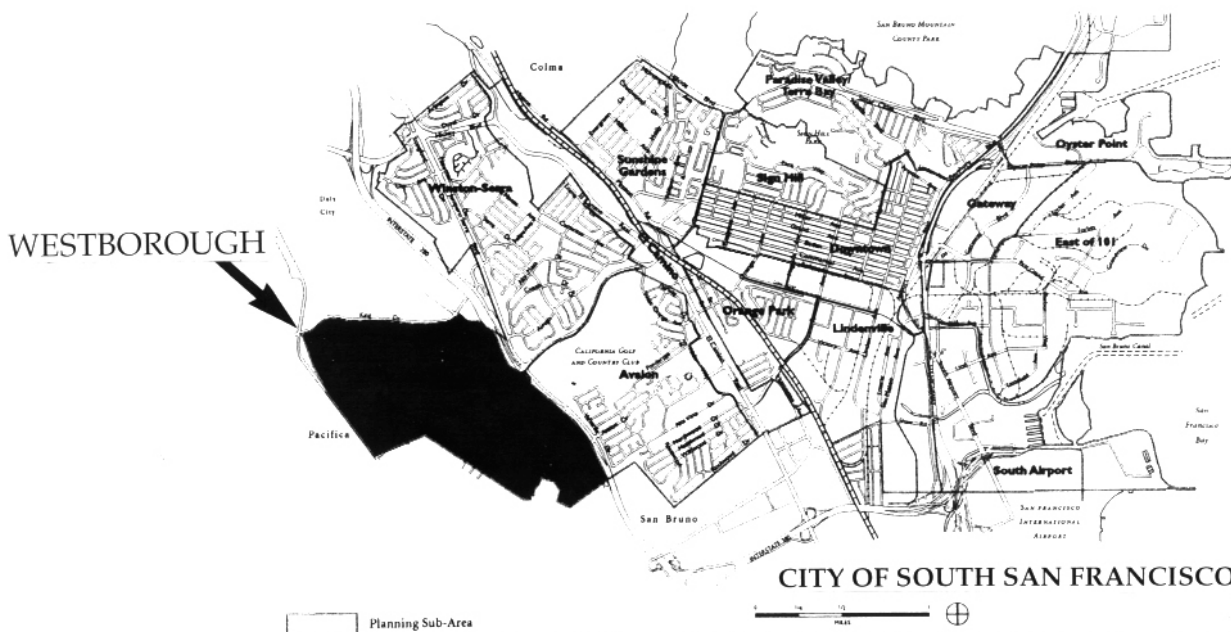
	January	February	March	April	May	June	July
Standard Average Eto (in. / mo.)	1.24	1.68	3.10	3.90	4.65	5.10	4.96
Average Rainfall (in.)	4.40	3.61	2.80	1.37	0.39	0.11	0.02
Average Max. Temperature (°F)	55.8	59.1	61.2	63.8	66.8	70.0	71.4
	August	September	October	November	December	Annual	
Standard Average Eto (in. / mo.)	4.65	3.90	2.79	1.80	1.24	39.0	
Average Rainfall (in)	0.04	0.18	0.99	2.32	3.75	20.00	
Average Max. Temperature	72.1	73.5	70.1	62.9	56.4	65.3	
Eto (EvapoTranspiration) rates in inches/month from California Irrigation Management System (CIMIS) reference Evapotranspiration Zones Map for Zone 2, Coastal Mixed Fog area.							
Rainfall and temperature data for San Francisco Airport monitoring station, from Western Regional Climate Center; 1948-2010.							

DISTRICT LOCATION

FIGURE 1



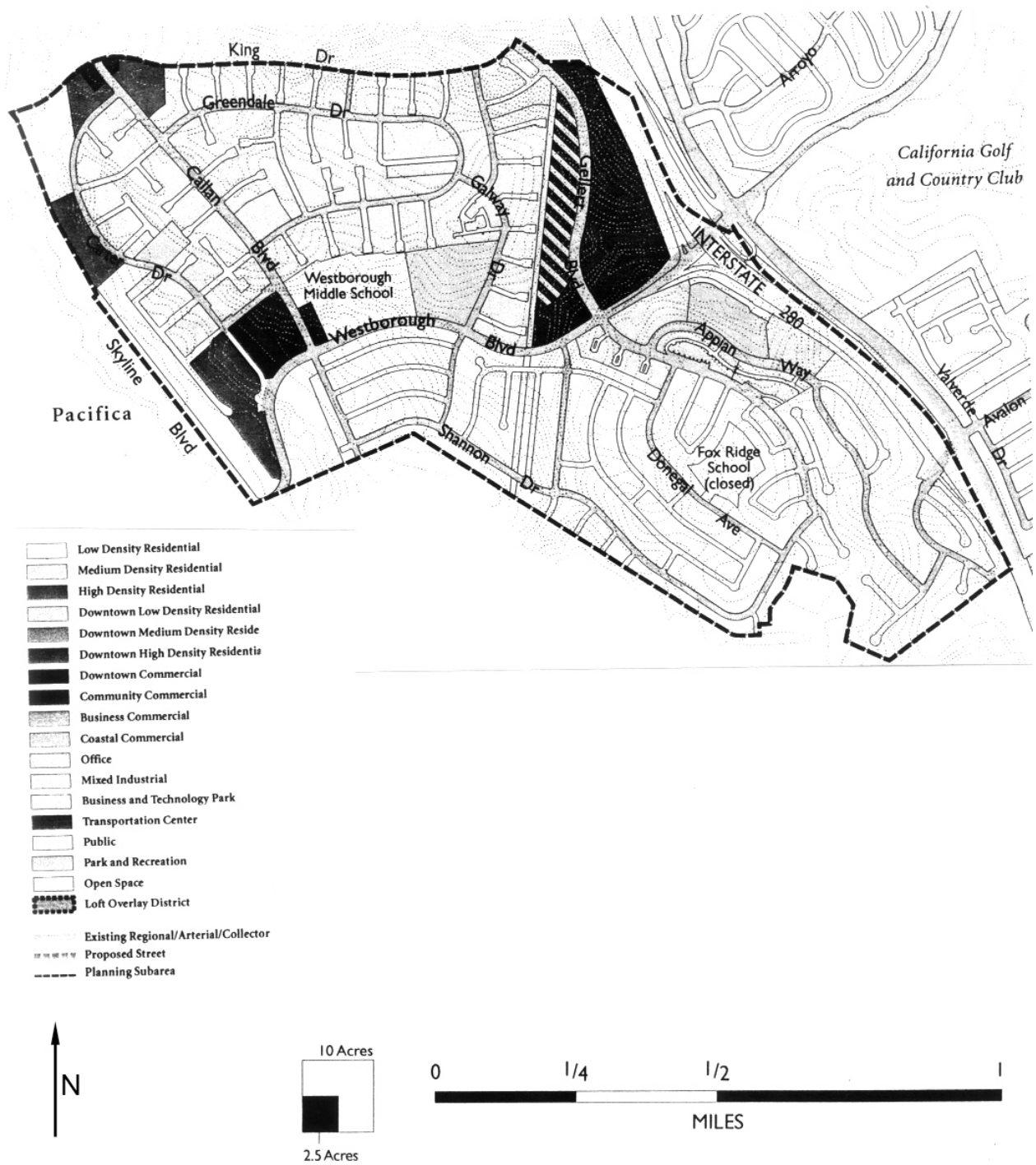
REGION





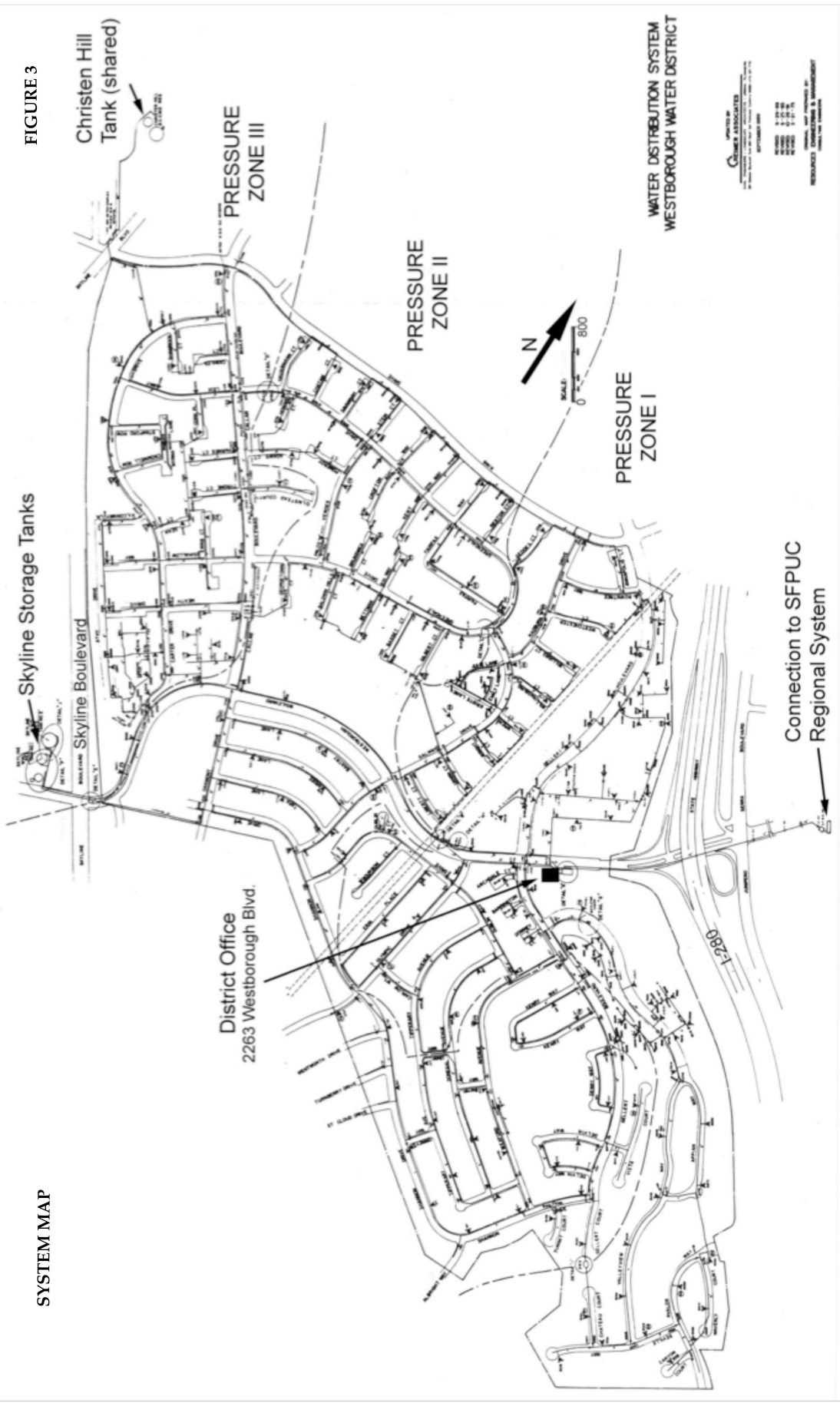
DISTRICT BOUNDARIES

FIGURE 2



Source: South San Francisco General Plan

FIGURE 3



## C. SERVICE AREA POPULATION

The District has a very stable population and there are limited opportunities for growth. In 1990 the population was 12,291<sup>1</sup> and in 2000 the population was 13,033.<sup>2</sup> In the past 10 years the District has added 382 single-family residential connections, of which 267 were added in 2007 and 2008 when a large condominium project was phased into service. In the same period, there have been only 7 new commercial connections and 8 irrigation/other connections. Currently, ABAG estimates that South San Francisco has an average of 3.04 persons per household<sup>3</sup>, which is slightly lower than the 3.06 ratio found in 2000, and substantially lower than the ratio of 3.33 found in the 1990 census. ABAG projects that the ratio of persons per household will be stable for the next 15 years, and then will drop slightly to 2.96 persons per household by 2035.

The District has only 87 commercial accounts, some of which serve large multi-family developments. Although the City of South San Francisco is expected to see about 16,400 new jobs (a 38% increase) over the coming 25 years<sup>4</sup>, very few of these will be created in the Westborough District. The *General Plan* projects about 71,000 square feet of new Community Commercial space in the Westborough District. Assuming 2.5 employees per 1,000 square feet, about 175 new jobs would be expected within the Water District's service area.

<b>TABLE 3</b> <b>POPULATION PROJECTIONS</b> <b>Westborough Water District Service Area</b>								
Year	2000	2005	2010	2015	2020	2025	2030	2035
District Population	13,033 <sup>a</sup>	13,190	14,050	14,050	14,060	14,040	14,020	14,020
<sup>a</sup> US Census, data for Tracts 6025 and 6026, 2000 Census.  <i>Sources:</i> US Census, 2000; 2010 – 2035 projections by Donaldson Associates derived from the 2005 Urban Water Management Plan and updated for current persons per household projections from ABAG, <i>Projections 2009</i> .								

Due to the limited amount of vacant, undeveloped land very few new homes are expected to be built in Westborough in the coming years. While there may be some growth in residential connections, the population is expected to remain very stable, with the projected decrease in household size offsetting the increase in the number of new households.

<sup>1</sup> 1990 U. S. Census data, Census Tracts 6025 and 6026. Source: South San Francisco Planning Department.

<sup>2</sup> 2000 U.S. Census data for Tracts 6025 and 6026 from American Factfinder, *census.gov*.

<sup>3</sup> ABAG, *Projections 2009*

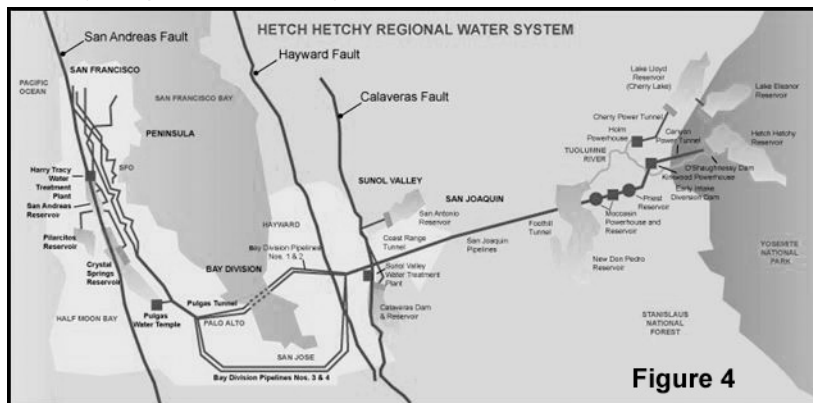
<sup>4</sup> ABAG, *Projections 2009*

In 2010 the Water District had 3,880 service connections. Based on the population projections shown in Table 3, and the projected decline in household size, it is estimated that the District will add approximately 100 new connections by 2035, an average of about 4 per year.

## D. WATER SUPPLY SOURCES

### 1. THE REGIONAL HETCH HETCHY SYSTEM

The Westborough Water District receives all of its water from the City and County of San Francisco's regional system, operated by the San Francisco Public Utilities Commission (SFPUC). This supply is predominantly from the Sierra Nevada, delivered through the Hetch Hetchy aqueducts, but also includes treated water produced by the SFPUC from its local watersheds and facilities in Alameda and San Mateo Counties. Figure 4 illustrates the Hetch Hetchy Regional Water System.



The amount of imported water available to the SFPUC's retail and wholesale customers is constrained by hydrology, physical facilities, and the institutional parameters that allocate the water supply of the Tuolumne River. Due to these constraints, the SFPUC is very dependent on reservoir

storage to firm-up its water supplies.

The SFPUC serves its retail and wholesale water demands with an integrated operation of local Bay Area water production and imported water from Hetch Hetchy. In practice, the local watershed facilities are operated to capture local runoff.

Water from the regional system<sup>1</sup> is delivered to the Westborough Water District's main pump station via a 14-inch pipeline in Westborough Boulevard, which is connected to the SFPUC's transmission pipeline near West Orange Avenue.

The District operates and maintains a distribution system that includes 3 pressure zones, 5 pumps, 3 water tanks, 3 pressure regulating valves. The system includes many miles of water mains with fire hydrants at regular intervals along all the streets in the service area. The District

<sup>1</sup> In this report the terms "Hetch Hetchy System" and "Regional System" are used interchangeably and are intended to refer to the entire SFPUC system.

has the ability to transfer water between pressure zones either in a pump up or flow down mode.

## 2. SFPUC'S WATER SYSTEM IMPROVEMENT PLAN

In order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply, the SFPUC has undertaken the Water System Improvement Program (WSIP), approved October 31, 2008. The WSIP will deliver capital improvements aimed at enhancing the SFPUC's ability to meet its water service mission of providing high quality water to customers in a reliable, affordable and environmentally sustainable manner. Many of the water supply and reliability projects evaluated in the WSIP were originally put forth in the SFPUC's *Water Supply Master Plan* (2000).

A Program Environmental Impact Report (PEIR) was prepared in accordance with the California Environmental Quality Act for the WSIP. The PEIR, certified in 2008, analyzed the broad environmental effects of the projects in the WSIP at a program level and the water supply impacts of various alternative supplies at a project level. Individual WSIP projects are also undergoing individual project specific environmental review as required.

In approving the WSIP, the Commission adopted a Phased WSIP Variant for water supply that was analyzed in the PEIR. This Phased WSIP Variant established a mid-term water supply planning milestone in 2018 when the Commission would reevaluate water demands through 2030. At the same meeting, the Commission also imposed the Interim Supply Limitation, which limits the volume of water that the member agencies and San Francisco can collectively purchase from RWS to 265 MGD until at least 2018. Although the Phased WSIP Variant included a mid-term water supply planning milestone, it did include full implementation of all proposed WSIP facility improvement projects to insure that the public health, seismic safety, and delivery reliability goals were achieved as soon as possible.

As of July 1, 2010, the WSIP was 27% complete overall with the planning and design work over 90% complete. The WSIP is scheduled to be completed in December 2015.

## 3. OTHER SOURCES OF SUPPLY

**Groundwater.** Local ground water resources are not of adequate quality or quantity to be a viable augmenting resource, nor have any viable surface water storage or conjunctive use projects been identified and developed by the Westborough Water District. Accordingly, its sole source of supply is the San Francisco PUC's Hetch Hetchy System.

**Recycled Water.** No recycled water is available for distribution by the Water District or others within the District's service area. The adjoining City of Daly City operates a recycled water distribution system, but there are no plans to extend it to Westborough. See Section VI, D, below.

**Desalination.** The Westborough Water District does not have an existing or planned program to develop or distribute any desalinated water.

## E. LOCAL STORAGE

The Westborough Water District has three storage tanks with a capacity of 5.8 mg. and uses a portion of a fourth tank that is owned by the North Coast County Water District. This tank supplies 0.5 mg. of additional working storage for WWD, pursuant to a joint agreement between the two Districts. The WWD's storage tank capacities are listed in Table 4.

The current storage capacity provides an adequate reserve for fire defense, and is sufficient to supply six days of emergency water supply, based on the current level of demand.

TABLE 4 WESTBOROUGH WATER DISTRICT TREATED WATER STORAGE FACILITIES		
#	Tank Identification	Capacity (gal.)
1.	Skyline #1	1,500,000
2.	Skyline #2	2,500,000
2.	Skyline #3	1,800,000
4.	Christen Hill tank allocation <sup>a</sup>	<u>500,000</u>
TOTAL		6,300,000
<sup>a</sup> Westborough Water District has 0.5 mg of storage capacity in this 3.50 mg tank owned by the North Coast County Water District. .		

## F. RELIABILITY OF SUPPLY

### 1. CURRENT CONTRACTUAL ASSURANCES

#### 2009 Water Supply Agreement

The business relationship between San Francisco and its wholesale customers is largely defined by the "Water Supply Agreement between the City and County of San Francisco and Wholesale Customers in Alameda County, San Mateo County and Santa Clara County" entered into in July 2009 (WSA). The new WSA replaced the Settlement Agreement and Master Water Sales Contract that expired June 2009. The WSA addresses the rate-making methodology used by the City in setting

wholesale water rates for its wholesale customers in addition to addressing water supply and water shortages for the RWS. The WSA has a 25 year term.

In terms of water supply, the WSA provides for a 184 million gallon per day (mgd, expressed on an annual average basis) "Supply Assurance" to the SFPUC's wholesale customers, subject to reduction, to the extent and for the period made necessary by reason of water shortage, due to drought, emergencies, or by malfunctioning or rehabilitation of the regional water system. The WSA does not guarantee that San Francisco will meet peak daily or hourly customer demands when their annual usage exceeds the Supply Assurance. The SFPUC's wholesale customers have agreed to the allocation of the 184 mgd Supply Assurance among themselves, with each entity's share of the Supply Assurance set forth on Attachment C to the WSA. The Westborough Water District's Supply Assurance is 1.32 mgd. The Supply Assurance survives termination or expiration of the WSA and Westborough's Individual Water Sales Contract with San Francisco.

The Water Shortage Allocation Plan between the SFPUC and its wholesale customers, adopted as part of the WSA in July 2009, addresses shortages of up to 20% of system-wide use. The Tier 1 Shortage Plan allocates water from the RWS between San Francisco Retail and the wholesale customers during system-wide shortages of 20% or less. The WSA also anticipated a Tier 2 Shortage Plan adopted by the wholesale customers, which would allocate the available water from the RWS among the wholesale customers.

### **Individual Supply Guarantees**

In 2009, the Westborough Water District, along with 25 other Bay Area water suppliers signed a Water Supply Agreement (WSA) with San Francisco, supplemented by an individual Water Supply Contract. These contracts, which expire in 25 years, provide for a 184 million gallon a day (mgd, expressed on an annual average basis) Supply Assurance to the SFPUC's wholesale customers collectively. The Westborough Water District's Individual Supply Guarantee (ISG) is 1.32 mgd (or approximately 1,478.6 acre feet per year). Although the WSA and accompanying Water Supply Contract expire in 2034, the Supply Assurance (which quantifies San Francisco's obligation to supply water to its individual wholesale customers) survives their expiration and continues indefinitely, as noted above.

## **2. INTERIM SUPPLY LIMITATION AND THE WATER CONSERVATION IMPLEMENTATION PLAN**

On October 31, 2008 the SFPUC imposed an Interim Supply Limitation on the RWS that limits the volume of water that BAWSCA member agencies and San Francisco can collectively purchase from the RWS to 265 mgd until at least 2018.

In September 2009, BAWSCA completed the Water Conservation Implementation Plan (WCIP). The goal of the WCIP is to develop an implementation strategy for BAWSCA and its member agencies to attain the water efficiency goals that the agencies committed to in 2004 as part of the

Program Environmental Impact Report (PEIR) of the Water System Improvement Program (WSIP), described above. The WCIP's goal was expanded to include identification of how BAWSCA member agencies could use water conservation as a way to continue to provide reliable water supplies to their customers thorough 2018 given the SFPUC's 265 million gallons per day (MGD) Interim Supply Limitation.

Based on the WCIP development and analysis process, BAWSCA and its member agencies identified five new water conservation measures, which, if implemented fully throughout the BAWSCA service area, could potentially save an additional 8.4 mgd by 2018 and 12.5 mgd by 2030. The demand projections for the BAWSCA member agencies, as transmitted to the SFPUC on June 30, 2010, indicate that the collective purchases from the SFPUC will stay below 184 ,gd through 2018 as a result of revised water demand projections, the identified water conservation savings, and other actions.

Several member agencies have elected to participate in the BAWSCA regional water conservation programs and BAWSCA continues to work with individual member agencies to incorporate the savings identified in the WCIP into their future water supply portfolios with the goal of maintaining collective SFPUC purchases below 184 mgd through 2018.

Table 5, below, summarizes the Westborough Water District's Supply Guarantee and Interim Supply Assurance (through 2018).

<b>TABLE 5</b> <b>ANNUAL SUPPLY LIMITS</b> <b>BASED ON SFPUC CONTRACTUAL ASSURANCE</b>		
Supply Source	Estimated Annual Maximum Purchases	
	Interim Supply (through 2018)	Normal Supply <sup>a</sup>
San Francisco Public Utilities Commission	1,209.8 AFY <sup>b</sup> (1.08 MGD)	1,478.6 AFY <sup>c</sup> (1.32 MGD)
<sup>a</sup> Supplies would typically be constrained in single or multiple years of below-normal precipitation. <sup>b</sup> SFPUC, Final Interim Supply Allocations, December 16, 2010. <sup>c</sup> Individual Supply Guarantee for Westborough from the Water Supply Agreement, July 1, 2009, Attachment C.		

### 3. LONG TERM RELIABLE WATER SUPPLY STRATEGY



BAWSCA's water management objective is to ensure that a reliable, high quality supply of water is available where and when people within the BAWSCA service area need it. A reliable supply of water is required to support the health, safety, employment, and economic opportunities of the existing and expected future residents in the BAWSCA service area and to supply water to the agencies, businesses, and organizations that serve those communities. BAWSCA is developing the Long-Term Reliable Water Supply Strategy (Strategy) to meet the projected water needs of its member agencies and their customers through 2035 and to increase their water supply reliability under normal and drought conditions.

The Strategy is proceeding in three phases. Phase I was completed in 2010 and defined the magnitude of the water supply issue and the scope of work for the Strategy. Phase II of the Strategy is currently under development and will result in a refined estimate of when, where, and how much additional supply reliability and new water supplies are needed throughout the BAWSCA service area through 2035, as well as a detailed analysis of the water supply management projects, and the development of the Strategy implementation plan. Phase II will be complete by 2013. Phase III will include the implementation of specific water supply management projects. Depending on cost-effectiveness, as well as other considerations, the projects may be implemented by a single member agency, by a collection of the member agencies, or by BAWSCA in an appropriate timeframe to meet the identified needs. Project implementation may begin as early as 2013 and will continue throughout the Strategy planning horizon, in coordination with the timing and magnitude of the supply need.

The development and implementation of the Strategy will be coordinated with the BAWSCA member agencies and will be adaptively managed to ensure that the goals of the Strategy, i.e., increased normal and drought year reliability, are efficiently and cost-effectively being met.

## **G. WATER QUALITY**

The SFPUC maintains and monitors the quality of the water imported from Hetch Hetchy, and collected and distributed as part of its regional system. The Hetch Hetchy supply is treated with lime addition at River Rock for corrosion control and chlorination at Tesla Portal for disinfection. Water that is delivered to Bay Area reservoirs receives filtration and disinfection treatment at either the Sunol or Harry Tracy filtration plants. Water from either of these treatment plants may be commingled with unfiltered Hetch Hetchy Water in Bay Area transmission pipelines.

The SFPUC and its wholesale customers were granted filtration avoidance for the Hetch Hetchy supply under Federal and State regulations in 1998. Under the regulations, public water systems serving water from the Hetch Hetchy supply, including the Westborough Water District, must demonstrate to the California Department of Health Services that the supply meets the State criteria for filtration avoidance.

Monitoring of the water quality within the District's distribution system is the District's responsibility. The District regularly monitors the quality of water in its system following an established set of sampling and testing protocols that have been approved by the State Department of Health. Sampling and testing is done weekly for bacteriological quality and disinfection residual, and quarterly for trihalomethanes. The on-going water quality sampling and testing efforts have consistently demonstrated that the District's water supply meets all applicable State and Federal drinking water standards.

## **H. EXCHANGES WITH OTHER AGENCIES**

As a wholesale customer of the San Francisco PUC, the Westborough Water District has a direct connection to San Francisco's huge Hetch Hetchy system. As noted above, the District's water transmission system is connected with the San Francisco system via a 14-inch pipeline from near Westborough Boulevard and West Orange Avenue in South San Francisco.

In addition, the District has interties with the adjoining water systems operated by the North Coast County Water District and the City of Daly City. The District shares a water storage tank with the North Coast County Water District, and water from the SFPUC Regional System is routinely transferred and exchanged between Westborough and NCCWD in the course of operating this storage tank. The intertie with Daly City is not frequently used, but is available to either purveyor in the event of a local emergency.

The interties and exchanges with these adjoining purveyors are neither a current or planned source of water supply for Westborough. The interconnection with the North Coast District is used to manage existing supplies, while both the North Coast and Daly City interconnections provide potential emergency back-up sources of water.

## **I. PLANNED WATER SUPPLY PROJECTS AND PROGRAMS**

The Westborough Water District serves an area that is almost built out, and the District's boundaries are set. Its supply assurance of 1.32 mgd (about 1,478.6 acre feet per year) under the terms of the Water Supply Agreement with the SFPUC continues indefinitely, and is sufficient to meet all current and projected water demands. The District has no plans or programs in place to develop an additional water supply, and none are expected to be developed in the foreseeable future.

## IV. PAST AND CURRENT WATER USE - BASELINES AND TARGETS

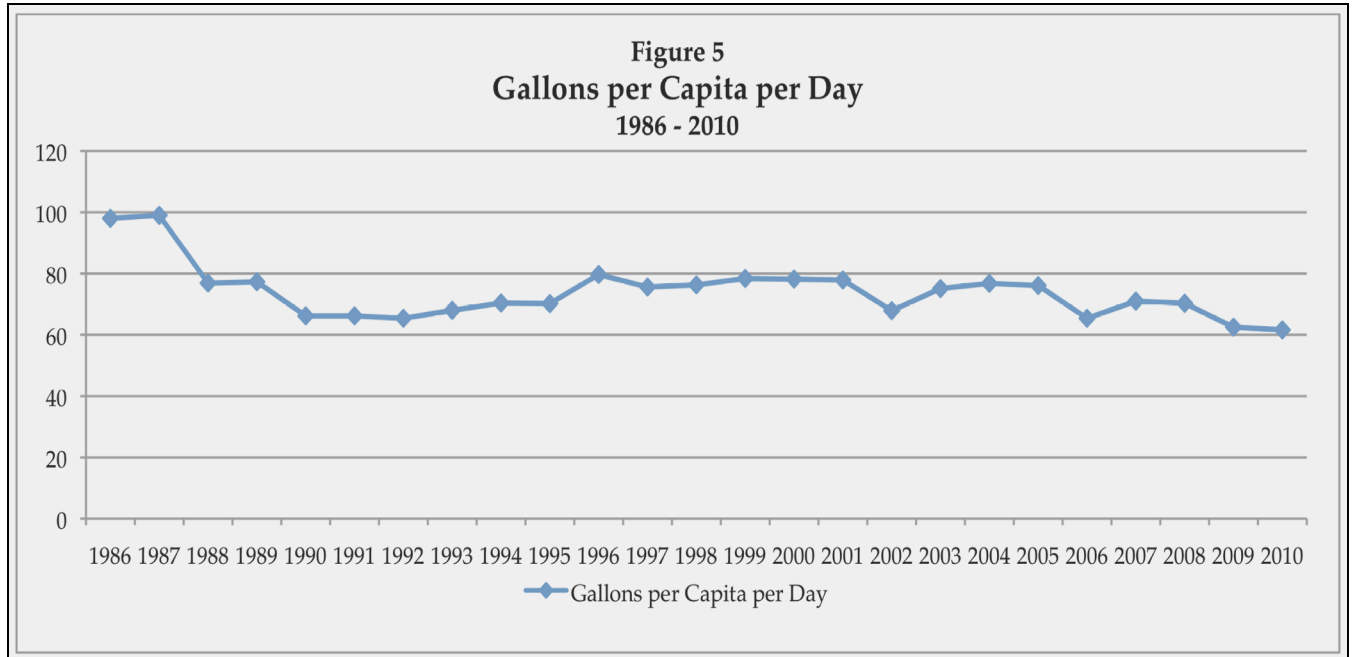
### A. WATER PRODUCTION

The Westborough Water District purchases all of its water from the San Francisco Water Department. These wholesale purchases, which represent the District's water production volumes, are summarized in five-year increments from 1990-2005 and for each year since 2005 in Table 6, below.

<b>TABLE 6</b> <b>WATER PRODUCTION</b> <b>5-Year Increments, 1990 – 2005</b> <b>1-Year Increments, 2005 - 2010</b> in Acre Feet per Year									
Source	1990	1995	2000	2005	2006	2007	2008	2009	2010
San Francisco Water Department	1,064.50 AF	995.24 AF	1,141.73 AF	1,116.17 AF	961.49 AF	1,092.24 AF	1,091.04 AF	976.42 AF	969.70 AF

While there have been no mandatory or voluntary water rationing programs in effect since 1993, the District's water requirement is approximately 9% lower than it was in the drought year of 1990, and almost 28% lower than it was in 1987, when the District had a peak production level of 1,346.32 AF.

The District's overall water consumption, expressed in terms of gallons per capita per day (gpcd), going back to 1986 is shown in Figure 5. The District's consumption has never been over 100 gpcd in the past 25 years. It dropped precipitously in the drought beginning in 1988-89 and in 2010, consumption reached a low of 61.6 gpcd.



## B. WATER SALES AND UNMETERED WATER

The Westborough Water District's annual water sales and unmetered water, in volume and as a percent of production, are depicted in Table 7. The data is presented in 5-year increments from 1990-2005 and for each year since 2005.

Unmetered water includes authorized and unauthorized uses. Authorized uses include water for fire fighting and training, hydrant flushing and other miscellaneous uses. Unauthorized uses include pipeline leaks, water meter inaccuracy, tank overflows, and possible stolen water. The unauthorized component of unmetered water is also known as unaccounted-for water. It is estimated that about one-third of the unmetered water goes to authorized uses; the remaining two-thirds is unaccounted-for water. As can be seen in Table 7, unmetered water volumes can vary widely from year to year, particularly in the event of major pipeline breaks.

The District shares a water storage tank with the North Coast County Water District and occasionally transfers water to NCCWD for its operational convenience. This has occurred in 2 of the past 6 years, as shown in Table 8. These transfers are not included in the water sales data in Table 7, above, as the District bills the NCCWD separately for reimbursement of actual water costs and pumping expenses.

<b>TABLE 7</b> <b>WATER SALES AND UNMETERED WATER</b> <b>5-Year Increments, 1990 – 2005</b> <b>1-Year Increments, 2005 - 2010</b> <b>in Acre Feet per Year</b>									
Description	1990 <sup>a</sup>	1995 <sup>a</sup>	2000	2005	2006	2007	2008	2009	2010
Water Sales	1,005.37 AF	980.51 AF	1,056.42 AF	939.98 AF	923.1 AF	952.40 AF	1,003.88 AF	949.99 AF	921.16 AF
Unmetered Water	74.69 AF	14.70 AF	85.31 AF	176.1 AF	38.39 AF	139.98 AF	87.16 AF	26.43 AF	48.54 AF
Unmetered Water; % of purchases	7.0%	1.5%	7.5%	15.7%	3.99%	12.8%	7.98%	2.70%	5.0%
<sup>a</sup> 1990 and 1995 data is for fiscal years.									

The transfers to NCCWD are for operational convenience and the District does not consider them to be wholesale purchases; also the District does not supply any water for saline water intrusion barriers, groundwater recharge, or conjunctive use.<sup>1</sup>

<b>TABLE 8</b> <b>WATER TRANSFERS TO OTHER AGENCIES</b> <b>2005-2010</b> <b>in Acre Feet per Year</b>						
	2005	2006	2007	2008	2009	2010
North Coast County Water District	-	-	275.57 AF	-	35.38 AF	-

## C. WATER SALES BY USER CATEGORY

<sup>1</sup>This information provided to comply with section 10631(e)(1)(G) and (H) of the Urban Water Management Planning Act.

Table 9 depicts the District's water sales by user categories in 5-year increments since 1985, and in yearly increments since 2005. In addition to showing water sales by user category, the number of active service connections is also shown.

As can be seen in Table 9, sales were substantially higher in 1985 than they were in any 5-year increment before or since. Sales peaked in 1987, at 1,347.16 AF. In the 1990's and 2000's sales have been variable, although within a narrow range, which reflects the stability of the community and low growth in the number of connections. Sales to the commercial sector increased by about 100 AFY between 1995 and 2000, but this increase has been substantially offset by reduced consumption in the single-family residential sector.

The vast majority of the District's connections are classified as residential. The Single Family category accounts for over 95% of the District's connections with commercial and irrigation meters accounting for about 2.5% each. The number of residential connections increased between 2006 and 2008, as a new residential development was completed. Consumption in the residential sector has not increased proportionately.

**TABLE 9**  
**WATER SALES AND SERVICES**  
**1985-2005 in 5-Year Segments**  
**2005 – 2010 in Annual Segments**

Year	No. Services / Sales (AFY)	Single- Family Residential	Commercial	Irrigation / Other	Total
1985	Services	3076	66	74	3,216
	Sales (AF)	958.11	74.27	250.12	1,282.49
1990	Services	3,190	63	79	3,332
	Sales (AF)	824.0	69.05	112.32	1,005.37
1995	Services	3,207	64	81	3,352
	Sales (AF)	791.47	78.87	110.17	980.51
2000	Services	3,307	80	86	3,508
	Sales (AF)	750.97	180.76	131.59	1,056.43
2005	Services	3,428	83	91	3,602
	Sales (AF)	670.75	168.98	100.25	939.97
2006	Services	3,425	85	92	3,724
	Sales (AF)	653.95	163.92	105.23	923.10
2007	Services	3,547	85	92	3,724
	Sales (AF)	654.97	174.72	122.71	952.40
2008	Services	3,692	89	94	3,875
	Sales (AF)	671.41	180.54	151.93	1,003.88
2009	Services	3,686	88	93	3,867
	Sales (AF)	653.59	170.93	125.46	949.99
2010	Services	3,699	87	94	3,880
	Sales (AF)	649.35	150.03	121.82	921.16
Note: All sales are metered.					

The District grew by only 176 service connections in the 1990's (0.52% per year), but has experienced more growth in the past decade, most of which occurred in 2008 when a new residential development was completed. Between 2000 and 2010, there were 372 new connections, an average growth rate of 1.06% per year. In terms of water sales, the residential sector accounted for 70.5 % of sales in 2010, while the commercial sector accounted for 16.3% of sales, while irrigation accounted for 13.2% of sales.

## **D. BASELINE WATER CONSUMPTION**

The Water Conservation Act of 2009 (SB7-X7) incorporated new provisions into the California Water Code establishing a program aimed at achieving a 20% reduction in statewide urban water use by 2020.<sup>1</sup> The law and implementing guidance promulgated by the Department of Water Resources establishes procedures for water suppliers to determine their baseline water use, in gallons per capita per day, and allows water suppliers the choice of complying individually or regionally by mutual agreement with other water suppliers. Suppliers can set their water use target using one of four Target Methods.

Baseline water use is determined by dividing the agency's gross water use, less any recycled water use, by the population served to determine the baseline water use in terms of gallons per capita per day (gpcd). The average annual use during specified five-year and ten-year periods<sup>2</sup> are used for determining base daily per capita water use for purposes of assessing compliance with the water use targets established in the Act. The use of averages smoothes out the effects of short-term water demand variations due to weather or other factors.

The law permits an agency to select its applicable 5-year base daily per capita water use from a continuous period ending no earlier than December 31, 2007 and ending no later than December 31, 2010. The 10-year base daily per capita water use number can be selected from a continuous 10-year period ending no earlier than December 31, 2004 and no later than December 31, 2010. Table 10 shows the calculated 10-year baseline per capita water use for each of the eligible years, while Table 11 shows Westborough's calculated 5-year baseline per capita water use for each of the eligible years. The baseline calculations are found in Appendix B.

As can be seen in Table 10, Westborough's highest 10-year baseline water use occurred during the period ending December 31, 2005. It is 76.0 gpcd, and will be used by the District as its selected 10-year baseline for purposes of determining compliance with the Water Conservation Act of 2009.

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<sup>1</sup> SB7x-7 amends Division 6, Part Section 2.55 of the California Water Code. Entitled *Sustainable Water Use and Demand Reduction*, it was approved by the Governor on November 10, 2009.

<sup>2</sup> A fifteen-year period can be used for agencies that meet 10% of their water demand with recycled water. This would not be applicable to the Westborough Water District.



<b>TABLE 10</b> <b>TEN-YEAR BASELINE WATER USE</b> Average Annual Use in Gallons per Capita per Day (GPCD)							
For the 10-Year period ending in:	2004	2005	2006	2007	2008	2009	2010
GPCD:	75.6	76.0	74.8	74.3	73.7	72.2	70.4

Table 11 indicates that the Westborough Water District's calculated 5-year baseline water use was highest in the period ending on December 31, 2007, and this level, 72.9 gpcd, will be used by the District in determining compliance with the Water Conservation Act of 2009. By comparison, the Department of Water Resource has determined that the statewide baseline water use is 192 gallons per capita per day.

<b>TABLE 11</b> <b>FIVE-YEAR BASELINE WATER USE</b> Average Annual Use in Gallons per Capita per Day (GPCD)				
For the 5-Year period ending in:	2007	2008	2009	2010
GPCD:	72.9	71.9	60.1	66.2

## E. WATER USE TARGETS

An urban retail water supplier must set a 2020 water use target and a 2015 interim water target using one of four methods. The supplier has discretion as to which target method<sup>1</sup> to choose so long as the supplier's water use reduction is no less than 5% of the 5-year base daily per capita usage, unless the base daily per capita use is 100 gallons per day or lower.

<sup>1</sup> The four target methods are:

- 1) 80% of the 10-year baseline daily per capita use.
- 2) Per capita daily water use using the sum of performance standards for various categories of service.
- 3) 95% of the applicable state hydrologic region target.
- 4) A special approach developed by DWR in December 2010.

The Westborough Water District has chosen Target Method 3 as its preferred method for determining compliance with Water Conservation Act of 2009's demand reduction goal. Target Method 3 sets the supplier's 2020 conservation goal at 95% of the applicable hydrologic region's target. Westborough is in the San Francisco Bay Hydrologic Region (Region 2). The 2015 interim target for Region 2 is 137 gpcd (95% of 144 gpcd) and the 2020 target is 124 gpcd (95% of 131 gpcd).

As can be seen from the data in Tables 10 and 11, Westborough's water consumption for all of the potential baseline periods is below 134 gpcd. Even the highest points in the respective baseline periods (76.0 and 72.9) are lower than the 2020 target for Region 2. Furthermore, the District's baseline consumption is below 100 gpcd, which exempts it from the requirement for a minimum demand reduction target of 5% of its 5-year baseline.<sup>1</sup> Accordingly, because of its low baseline consumption, Westborough is exempt from the demand reduction requirements of the Water Conservation Act of 2009.

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<sup>1</sup> This exemption is found in Section 10608.24 of the Water Code.

## V. PROJECTED WATER DEMAND AND RELIABILITY

### A. PROJECTED WATER DEMAND

Westborough was initially developed in the 1960s and 1970s, and was quickly built out. By the early 1980's, most of the easily developable land had been used and the rate of growth declined precipitously. In 1980, the population of the District was about 10,400.<sup>1</sup> By 1990, it had increased to 12,291, and in 2000 the population was 13,033. A major housing development was completed and occupied in 2007-08. Future development opportunities will be limited to a small number of vacant lots, some possible lot-splits, and several vacant, but highly constrained parcels within the earthquake special studies zone.<sup>2</sup> Overall, the population of the District is not expected to increase over the next 25 years. The small increase in population from new residential development will be offset by a decrease in household sizes, which are projected to drop from 3.04 persons per household today to 2.96 persons per household in 2035.<sup>3</sup>

The job growth in the Westborough Water District is also expected to be modest, because only a limited amount of new commercial space is expected. The South San Francisco *General Plan* projects about 71,000 square feet of new Community Commercial space in the Westborough District. Assuming 2.5 employees per 1,000 square feet, there is a potential for about 175 new jobs within the Water District's service area, although there has been very little, if any, increase in demand for commercial space since the *General Plan* was adopted in 1999. The District's sales to the commercial sector have dropped over the past five years because of the economic recession. For purposes of this study it is assumed that sales to the commercial sector will be proportionate to the average level of the 5-year base period.

Projected production requirements for the Westborough Water District, (purchases from the SFPUC) in 5-year increments to 2030, are depicted in Table 12, below. These projections assume normal water deliveries, unconstrained by water rationing due to drought.

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<sup>1</sup>Westborough Water District, 1996 *Urban Water Management Plan*, p. 5.

<sup>2</sup> Steve Carlson, City Planner, City of South San Francisco, personal communication, October 8, 2005.

<sup>3</sup> ABAG, *Projections 2009*, p. S4.

**TABLE 12**  
**PROJECTED WATER DEMAND**  
**5-Year Increments, 2015 – 2035**

	Current <sup>a</sup>	2015	2020	2025	2030	2035
Single-Family Residential Sector	656.65 AFY	657 AFY	658 AFY	657 AFY	656 AFY	656 AFY
Commercial Sector	168.02 AFY	168 AFY	168 AFY	168 AFY	167 AFY	167 AFY
Irrigation/Other Sector	125.43 AFY	125 AFY	125 AFY	124 AFY	124 AFY	124 AFY
Projected Demand (AFY) <sup>b</sup>	950.1 AFY	950 AFY	951 AFY	949 AFY	947 AFY	947 AFY
Plumbing Code Reduction <sup>c</sup>	-	- 1.95%	-3.25%	-4.55%	-5.85%	-7.15%
	-	-18.5 AFY	-30.9 AFY	-43.2 AFY	-55.4 AFY	-67.7 AFY
Unaccounted-for water <sup>d</sup>	68.1 AFY	67.1 AFY	66.2 AFY	65.2 AFY	64.2 AFY	63.3 AFY
Production Requirement (AFY)	1,018.2 AFY	998.6 AFY	986.3 AFY	971.0 AFY	955.8 AFY	942.6 AFY
Production Requirement (mgd)	0.91 mgd	0.89 mgd	0.88 mgd	0.87 mgd	0.85 mgd	0.84 mgd
<sup>a</sup> Current demand is equivalent to the average annual demand for the past 5 years (5-year baseline). <sup>b</sup> Demand is projected to change in proportion to population projections population projections for each period. <sup>c</sup> From BAWSCA <i>Water Conservation Implementation Plan</i> , DSS Model Updates, p. 2-6, Fig 2.3. <sup>d</sup> Conservatively assumed to remain at current 5-year average: 7.2% of sales.						

The water sales projections in Table 12 were developed by adjusting the current 5-year baseline water sales to account for projected changes in population (See Table 3, above.) Each projection was reduced to account for the cumulative effects of plumbing code replacements, which were

derived as part of the DSS model<sup>1</sup> developed by consultants to the SFPUC and described in the *Wholesale Customer Water Demand Projections* report. The net sales were then increased to factor in unaccounted-for water to develop a projected production requirement. As can be seen in Table 12, the population based demand is projected to remain very stable over the next 25 years, while the water conserved with on-going change-outs of existing plumbing fixtures for more water efficient devices will gradually reduce overall demand.

The City of South San Francisco's *Housing Element* identifies a citywide need for 805 lower-income housing units.<sup>2</sup> According to the *Housing Element*, the City has the land and zoning capacity to accommodate up to 1,244 lower income units in three identified areas: Downtown, South El Camino Real and the Transit Village. The potential sites in all of these areas are projected to be developed at densities of up to 30 units per acre; accordingly it is assumed that the new lower income units would all be in multi-family buildings.

The *Housing Element* does not identify any sites in the Westborough area as having the potential for the development for lower income housing. Potentially, however, Westborough could see a modest number of lower income units, primarily secondary residential units, which would be served by the Westborough Water District. The water demand projections in Table 12, above, consider all potential residential growth, and water for any lower income units that might be built is included in the projections.

Under the terms of the contract with the San Francisco Public Utilities Commission, the District's maximum supply (maximum wholesale allocation) is 1,478.6 AFY. The District's Interim Supply Allocation imposed by the SFPUC, which will remain in effect through 2018, is 1,209.8 AFY (1.08 MGD). As can be seen in Table 12, the existing wholesale allocation and Interim Supply Allocation are sufficient to meet the District's projected needs, from the present time through 2035.

## B. DROUGHT SCENARIOS

In dry years the yield of the Regional Water System, which is the District's sole source of supply would decline. The SFPUC and BAWSCA members have developed plans to address potential drought scenarios. The Tier One Drought Allocations, described below, sets a framework for sharing available water between San Francisco and the wholesale customers, while the Tier Two Drought Allocations, also described below, establish a methodology for allocating the Wholesale customer share among the BAWSCA members.

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<sup>1</sup> DSS is short for *Demand Side Management Least-Cost Planning Decision Support System*. The model is a spreadsheet based end-use model in which water usage is broken down from total water production to specific water end uses such as toilets, faucets or irrigation. It was developed for the SFPUC in 2004 for the *Wholesale Customer Water Demand Projections* (SFPUC) and updated in 2008 for the *Water Conservation Implementation Plan* (BAWSCA). The update reflects plumbing code provisions adopted after 2004.

<sup>2</sup> City of South San Francisco, *Housing Element*, 2009.

## 1. TIER ONE DROUGHT ALLOCATIONS

In July 2009, in connection with the WSA, the wholesale customers and San Francisco adopted a Water Shortage Allocation Plan (WSAP) to allocate water from the regional water system to retail and wholesale customers during system-wide shortages of 20% or less (the “Tier One Plan”). The Tier One Plan replaced the prior Interim Water Shortage Allocation Plan, adopted in 2000, which also allocated water for shortages up to 20%. The Tier One Plan also allows for voluntary transfers of shortage allocations between the SFPUC and any wholesale customer and between wholesale customers themselves. In addition, water “banked” by a wholesale customer, through reductions in usage greater than required, may also be transferred.

The Tier One Plan, which allocates water between San Francisco and the wholesale customers collectively, distributes water based on the level of shortage:

TABLE 13 TIER ONE DROUGHT ALLOCATIONS		
Level of System Wide Reduction in Water Use Required	Share of Available Water	
	SFPUC Share	Wholesale Customers Share
5% or less	35.5%	64.5%
6% through 10%	36.0%	64.0%
11% through 15%	37.0%	63.0%
16% through 20%	37.5%	62.5%

The Tier One Plan will expire at the end of the term of the Water Supply Agreement, unless extended by San Francisco and the wholesale customers.<sup>1</sup>

## 2. TIER TWO DROUGHT ALLOCATIONS

The wholesale customers have negotiated, and are in the process of adopting, the “Tier Two Drought Implementation Plan” (DRIP), the second component of the Water Shortage Allocation Plan which allocates the collective wholesale customer share among each of the 26 wholesale customers. This Tier Two allocation is based on a formula that takes multiple factors for each wholesale customer into account, including:

- Individual Supply Guarantee;
- Seasonal use of all available water supplies; and
- Residential per capita use.

<sup>1</sup> The Water Supply Agreement expires in 2034, with options for one or two five-year extensions.

The water made available to the wholesale customers collectively will be allocated among them in proportion to each wholesale customer's Allocation Basis, expressed in millions of gallons per day (mgd), which in turn is the weighted average of two components. The first component is the wholesale customer's Individual Supply Guarantee, as stated in the WSA, and is fixed.<sup>1</sup> The second component, the Base/Seasonal Component, is variable and is calculated using the monthly water use for three consecutive years prior to the onset of the drought for each of the wholesale customers for all available water supplies. The second component is accorded twice the weight of the first, fixed component in calculating the Allocation Basis. Minor adjustments to the Allocation Basis are then made to ensure a minimum cutback level, a maximum cutback level, and a sufficient supply for certain wholesale customers.

The Allocation Basis is used in a fraction, as numerator, over the sum of all wholesale customers' Allocation Bases to determine each wholesale customer's Allocation Factor. The final shortage allocation for each wholesale customer is determined by multiplying the amount of water available to the wholesale customers' collectively under the Tier One Plan, by the wholesale customer's Allocation Factor.

The DRIP requires that the Allocation Factors be calculated by BAWSCA each year in preparation for a potential water shortage emergency. As the wholesale customers change their water use characteristics (e.g., increases or decreases in SFPUC purchases and use of other water sources, changes in monthly water use patterns, or changes in residential per capita water use), the Allocation Factor for each wholesale customer will also change. However, for long-term planning purposes, each wholesale customer shall use as its Allocation Factor, the value identified in the Tier Two Plan when adopted.

The Tier Two Plan will expire in 2018 unless extended by the wholesale customers.

The SFPUC has assessed the reliability of its water supply and estimated the frequency and severity of anticipated shortages in the event of drought conditions as have occurred in the historic hydrologic period of 1920 through 2002.<sup>2</sup> Two drought scenarios are assumed. The first is a single dry year in which the supply from the Hetch Hetchy system is reduced by 10% in response to a request for voluntary conservation. The second scenario assumes multiple dry years: in the first year the San Francisco PUC requests voluntary reductions of 10%. In the second dry year the SFPUC requires 20% conservation by wholesale customers. In the third year local supplies are again at their minimum levels and San Francisco mandates 20% reductions in demand.

The Drought Scenarios are presented in Table 14, below. As can be seen in Table 14, the District's customers would not have to reduce their overall demand under any of the drought scenarios. Because the District's demand on the SFPUC system is well below its contractual

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<sup>1</sup> The Westborough Water District's supply guarantee is 1.32 MGD.

<sup>2</sup>Letter from Paula Kehoe, Director of Water Resources, SFPUC to Nichole Sandkulla, Senior Water Resources Engineer, BAWSCA, March 31, 2011, with attachments

supply assurance, Westborough's current (and projected) demand is lower than the Tier 2 drought allocation it would receive during any of the projected drought scenarios.

**TABLE 14**  
**DROUGHT SCENARIOS**  
**SINGLE DRY YEAR AND MULTIPLE DRY YEARS**  
**2010 DEMAND LEVEL<sup>a</sup>**

	Purchase Request (2010)	One Critical Dry Year	Multiple Dry Years		
			Year 1	Year 2	Year 3
System-Wide Shortage (%)	0%	10%	10%	20%	20%
Wholesale Allocation	184.0 mgd	152.6 mgd	152.6 mgd	132.5 mgd	132.5 mgd
Westborough Tier 2 Allocation Factor	-	0.69%	0.69%	0.69%	0.69%
Westborough Allocation <sup>b</sup>	0.822 mgd	1.053 mgd	1.053 mgd	0.914 mgd	0.914 mgd
Westborough Reduction	0%	0%	0%	0%	0%

<sup>a</sup> See Table 16 for Drought Scenarios in future years.

<sup>b</sup> Wholesale water demands were very low relative to available supply throughout the Hetch Hetchy system in 2010. Based on information provided by the SFPUC and application of the Tier 1 Drought Allocation Plan and the DRIP, Westborough's projected drought allocation from the SFPUC in 2010 and immediately thereafter are actually greater than the District's 2010 purchases of 0.822 mgd (921.16 AFY). Westborough would be projected to receive up to 1.053 mgd under a 10% system-wide rationing, and up to 0.914 mgd under a 20% system-wide rationing. As such, the District has shown that in 2010, even under extended drought conditions, it would be able to get 100% of its SFPUC purchase projections.

## C. RELIABILITY OF THE REGIONAL WATER SYSTEM

### 1. WATER SUPPLY IMPROVEMENT PROGRAM

The SFPUC's Water System Improvement Program (WSIP) provides goals and objectives to improve the delivery reliability of the Regional Water System (RWS) including water supply reliability. The goals and objectives of the WSIP related to water supply are:



<b>Program Goal</b>	<b>System Performance Objective</b>
Water Supply – <i>meet customer water needs in non-drought and drought periods</i>	<ul style="list-style-type: none"> <li>• Meet average annual water demand of 265 million gallons per day (mgd) from the SFPUC watersheds for retail and wholesale customers during non-drought years for system demands through 2018.</li> <li>• Meet dry-year delivery needs through 2018 while limiting rationing to a maximum 20 percent system-wide reduction in water service during extended droughts.</li> <li>• Diversify water supply options during non-drought and drought periods.</li> <li>• Improve use of new water sources and drought management, including groundwater, recycled water, conservation, and transfers.</li> </ul>

The adopted WSIP had several water supply elements to address the WSIP water supply goals and objectives. The following provides the water supply elements for all year types and the dry-year projects of the adopted WSIP to augment all year type water supplies during drought.

### **Water Supply – All Year Types**

The SFPUC historically has met demand in its service area in all year types from its watersheds. They are the:

- Tuolumne River watershed
- Alameda Creek watershed
- San Mateo County watersheds

In general, 85 percent of the supply comes from the Tuolumne River through Hetch Hetchy Reservoir and the remaining 15 percent comes from the local watersheds through the San Antonio, Calaveras, Crystal Springs, Pilarcitos and San Andreas Reservoirs. The adopted WSIP retains this mix of water supply for all year types.

### **Water Supply – Dry-Year Types**

The adopted WSIP includes the following water supply projects to meet dry-year demands with no greater than 20 percent system-wide rationing in any one year:

- Restoration of Calaveras Reservoir capacity
- Restoration of Crystal Springs Reservoir capacity
- Westside Basin Groundwater Conjunctive Use
- Water Transfer with Modesto Irrigation District (MID) / Turlock Irrigation District (TID)

In order to achieve its target of meeting at least 80 percent of its customer demand during droughts, the SFPUC must successfully implement the dry-year water supply projects included in the WSIP.

### **Projected SFPUC System Supply Reliability**

As noted above, the SFPUC assessed the reliability of its water supply and estimated the frequency and severity of anticipated shortages in the event of drought conditions as have occurred in the historic hydrologic period of 1920 through 2002. These estimates are incorporated into the Drought Scenarios in Table 14 above as the respective wholesale allocations. These allocations assume that the wholesale customers purchase 184 mgd from the RWS through 2030 and the implementation of the dry-water water supply projects included in the WSIP. The numbers represent the wholesale share of available supply during historical year types per the Tier One Water Shortage Allocation Plan. This table does not reflect any potential impact to RWS yield from the additional fishery flows required as part of Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project.

### **Impact of Recent SFPUC Actions on Dry Year Reliability of SFPUC Supplies**

In adopting the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements Project, the SFPUC committed to providing fishery flows below Calaveras Dam and Lower Crystal Springs Dam as well as bypass flows below Alameda Creek Diversion Dam. The fishery flow schedules for Alameda Creek and San Mateo Creek represent a potential decrease in available water supply of an average annual 3.9 mgd and 3.5 mgd, respectively with a total of 7.4 mgd average annually. These fishery flows could potentially create a shortfall in meeting the SFPUC demands of 265 mgd and slightly increase the SFPUC's dry-year water supply needs. If a shortfall occurs, it is anticipated at the completion of construction of both the Calaveras Dam Replacement Project and the Lower Crystal Springs Dam Improvements project in approximately 2015 and 2013, respectively when the SFPUC will be required to provide the fishery flows.

The adopted WSIP water supply objectives include (1) meeting a target delivery of 265 mgd through 2018 and (2) rationing at no greater than 20 percent system-wide in any one year of a drought. As a result of the fishery flows, the SFPUC may not be able to meet these objectives between 2013 and 2018 without (1) a reduction in demand, (2) an increase in rationing, or (3) a supplemental supply. The following describes these actions.

**Reduction in Demand.** The current projections for purchase requests through 2018 remain at 265 mgd. However, in the last few years, SFPUC deliveries have been below this level, as illustrated in Table 15. If this trend continues, the SFPUC may not need 265 mgd from its watersheds to meet purchase requests through 2018. As a result, the need for supplemental supplies of 3.5 mgd starting in 2013 and increasing to 7.4 mgd in 2015 to offset the water supply loss associated with fish releases may be less than anticipated.

**TABLE 15**  
**RECENT WATER DELIVERIES IN SFPUC SERVICE AREA**

	FY 2006	FY 2007	FY 2008	FY 2009	FY 2010
Total Deliveries <sup>a</sup>	247.5 mgd	257 mgd	254.1 mgd	243.4 mgd	225.2 mgd

<sup>a</sup> Reference: SFPUC FY09-10 J-Table Line 9 "Total System Usage" plus 0.7 mgd for Lawrence Livermore National Laboratory use and 0.4 mgd for Groveland. No groundwater use is included in this number. Unaccounted-for-Water is included.

**Increase in Rationing.** The adopted WSIP provides for a dry year water supply program that, when implemented, would result in system-wide rationing of no more than 20 percent. The PEIR identified the following drought shortages during the design drought; 3.5 out of 8.5 years at 10 percent rationing and 3 out of 8.5 years at 20 percent. If the SFPUC did not develop a supplemental water supply in dry years to offset the effects of the fishery flows on water supply, rationing would increase during dry years. If the SFPUC experiences a drought between 2013 and 2018 in which rationing would need to be imposed, rationing would increase by approximately 1 percent in shortage years. Rationing during the design drought would increase by approximately 1 percent in rationing years.

**Supplemental Supply.** The SFPUC may be able to manage the water supply loss associated with the fishery flows through the following actions and considerations:

- Development of additional conservation and recycling
- Development of additional groundwater supply
- Water transfer from MID and/or TID
- Increase in Tuolumne River supply
- Revising the Upper Alameda Creek Filter Gallery Project capacity<sup>1</sup>
- Development of a desalination project

The SFPUC has stated a commitment to meeting its contractual obligation to its wholesale customers of 184 mgd and its delivery reliability goal of 265 mgd with no greater than 20 percent rationing in any one year of a drought. In Resolution No. 10-0175 adopted by the

<sup>1</sup> The adopted WSIP included the Alameda Creek Fishery Enhancement project, since renamed the Upper Alameda Creek Filter Gallery (UACFG) project, which had the stated purpose of recapturing downstream flows released under a 1997 California Department of Fish and Game MOU. Implementation of the UACFG project was intended to provide for no net loss of water supply as a result of the fishery flows bypassed from ACDD and/or released from Calaveras Dam. At the time the PEIR was prepared, the UACFG was described in the context of recapturing up to 6300 AF per year. The UACFG will undergo a separate CEQA process in which all impacts associated with the project will be analyzed fully.

Commission on October 15, 2010, the Commission directed staff to provide information to the Commission and the public by March 31, 2011 on how the SFPUC has the capability to attain its water supply levels of service and contractual obligations. This directive was in response to concerns expressed by the Commission and the Wholesale Customers regarding the effect on water supply of the instream flow releases required as a result of the Lower Crystal Springs Dam Improvement Project and the Calaveras Dam Replacement Project. In summary, the SFPUC has a projected shortfall of available water supply to meet its LOS goals and contractual obligations. The SFPUC has stated that current decreased levels of demand keep this from being an immediate problem, but that in the near future, the SFPUC must resolve these issues. Various activities are underway by the SFPUC to resolve the shortfall problem. SFPUC staff will report back to the Commission by August 31, 2011 to provide further information on actions to resolve the shortfall problem.

## 2. CLIMATE CHANGE

The issue of climate change has become an important factor in water resources planning in the State, and is frequently being considered in urban water management planning purposes, though the extent and precise effects of climate change remain uncertain. As described by the SFPUC in its *Final Water Supply Availability Study for the City and County of San Francisco*, dated October 2009, there is evidence that increasing concentrations of greenhouse gasses have caused and will continue to cause a rise in temperatures around the world, which will result in a wide range of changes in climate patterns. Moreover, there is evidence that a warming trend occurred during the latter part of the 20th century and will likely continue through the 21st century. These changes will have a direct effect on water resources in California, and numerous studies have been conducted to determine the potential impacts to water resources. Based on these studies, climate change could result in the following types of water resource impacts, including impacts on the watersheds in the Bay Area:

- Reductions in the average annual snowpack due to a rise in the snowline and a shallower snowpack in the low and medium elevation zones, such as in the Tuolumne River basin, and a shift in snowmelt runoff to earlier in the year;
- Changes in the timing, intensity and variability of precipitation, and an increased amount of precipitation falling as rain instead of as snow;
- Long-term changes in watershed vegetation and increased incidence of wildfires that could affect water quality;
- Sea level rise and an increase in saltwater intrusion;
- Increased water temperatures with accompanying potential adverse effects on some fisheries and water quality;
- Increases in evaporation and concomitant increased irrigation need; and
- Changes in urban and agricultural water demand.

According to the SFPUC, other than the general trends listed above, there is no clear scientific consensus on exactly how climate change will quantitatively affect the state's water supplies,

and current models of water systems in California generally do not reflect the potential effects of climate change.

Initial climate change modeling completed by the SFPUC indicates that about seven percent of runoff currently draining into Hetch Hetchy Reservoir will shift from the spring and summer seasons to the fall and winter seasons in the Hetch Hetchy basin by 2025. This percentage is within the current interannual variation in runoff and is within the range accounted for during normal runoff forecasting and existing reservoir management practices. The predicted shift in runoff timing is similar to the results found by other researchers modeling water resource impacts in the Sierra Nevada due to warming trends associated with climate change.

The SFPUC has stated that based on this preliminary analysis, the potential impacts of climate change are not expected to affect the water supply available from the San Francisco Regional Water System (RWS) or the overall operation of the RWS through 2030.

The SFPUC views assessment of the effects of climate change as an ongoing project requiring regular updating to reflect improvements in climate science, atmospheric/ocean modeling, and human response to the threat of greenhouse gas emissions. To refine its climate change analysis and expand the range of climate parameters being evaluated, as well as expand the timeframes being considered, the SFPUC is currently undertaking two additional studies. The first utilizes a newly calibrated hydrologic model of the Hetch Hetchy watershed to explore sensitivities of inflow to different climate change scenarios involving changes in air temperature and precipitation. The second study will seek to utilize state-of-the-art climate modeling techniques in conjunction with water system modeling tools to more fully explore potential effects of climate change on the SFPUC water system as a whole. Both analyses will consider potential effects through the year 2100.

### **3. 2018 INTERIM SUPPLY LIMITATION**

As part of its adoption of the Water System Improvement Program (WSIP) in October 2008, discussed separately herein, the Commission adopted a water supply element, the Interim Supply Limitation, to limit sales from San Francisco Regional Water System (RWS) watersheds to an average annual of 265 million gallons per day (mgd) through 2018. The wholesale customers' collective allocation under the Interim Supply Limitation is 184 mgd and San Francisco's is 81 mgd. Although the wholesale customers did not agree to the Interim Supply Limitation, the WSA provides a framework for administering the Interim Supply Limitation.

BAWSCA has developed a strategy to address each of its member agencies' unmet needs flowing from the Interim Supply Limitation through its Water Conservation Implementation Plan and the Long-term Reliable Water Supply Strategy, separately addressed herein.

#### **Interim Supply Allocations**

The Interim Supply Allocations (ISAs) refers to each individual wholesale customer's share of the Interim Supply Limitation. On December 14, 2010, the Commission established each agency's ISA through 2018. In general, the Commission based the allocations on the lesser of the projected fiscal year 2017-18 purchase projections or Individual Supply Guarantees. The ISAs are effective only until December 31, 2018 and do not affect the Supply Assurance or the Individual Supply Guarantees, both discussed separately herein. San Francisco's Interim Supply Allocation is 81 million gallons per day (mgd).

The Westborough Water District's ISA is 1.08 mgd. (See Table 5).

As stated in the Water Supply Agreement, the wholesale customers do not concede the legality of the Commission's establishment of the ISAs and Environmental Enhancement Surcharge, discussed below, and expressly retain the right to challenge either or both, if and when imposed, in a court of competent jurisdiction.

### **Environmental Enhancement Surcharge**

The Commission plans to establish the Environmental Enhancement Surcharge concurrently with the budget-coordinated rate process. This surcharge will be unilaterally imposed by SFPUC on individual wholesale customers, and SFPUC retail customers, when each agency's use exceeds their Interim Supply Allocation and when sales of water to the wholesale customers and San Francisco retail customers, collectively, exceeds the Interim Supply Limitation of 265 mgd.

The SFPUC is in the process of developing the methodology and amount of this volume-based charge. The Environmental Enhancement Surcharge will become effective beginning fiscal year 2011-12.

# VI. WATER SHORTAGE CONTINGENCY PLAN

## A. INTRODUCTION

Section 10632 of the California Water Code requires *Urban Water Management Plans* to include the preparation of a water shortage contingency analysis. The first part of the *Water Shortage Contingency Plan* presented in this chapter describes the Westborough Water District's emergency response plan for responding to a sudden water shortage or water quality emergency such as might occur in the event of significant system damage from a major earthquake, or during a prolonged power outage, or in the event of a water quality emergency from bacteriological or chemical contamination of the water supply. The second part of the *Water Shortage Contingency Plan* describes the District's planning to address potential long-term water shortage conditions that could occur following one or more years of low precipitation (a drought).

## B. WATER SUPPLY EMERGENCY RESPONSE

The District has a written Emergency Operating Plan, designed to provide guidance and direction for the activities of the District's staff both during a water supply or water quality emergency and in mobilizing the post disaster response. Key provisions of the plan are summarized below:

**Readiness.** The District's primary emergency operations center would be created at the District office, at 2263 Westborough Boulevard in South San Francisco. The District office is equipped with radios, telephones, telemetry equipment for operating the system, spare parts, emergency equipment, and supplementary documents and supplies. Diagrams and summaries for activating the interconnections with adjoining water systems are available. In addition, equipment for portable hydrant systems is available at District Headquarters. The emergency operations center would be the central point of coordination for government services, communications, and emergency public information.

Communication protocols have been established and damage evaluation procedures have been defined. In the immediate period following a major disaster, such as an earthquake, the District's initial task would be to evaluate the water supply system and to isolate breaks in order to minimize storage losses as quickly as possible.

The emergency operating center staffing would include the General Manager or his designee plus additional staff to help coordinate disaster control activities and communicate with the

public. Other key District personnel would be assigned specific roles depending on the magnitude of the emergency as well as the time of occurrence. On non-business days and after hours, the District maintains 24-hour response capability with the assignment of trained on-call workers who can be summoned by calls from the District answering service or the local Police and Fire Departments.

The District has assembled an inventory of equipment and spare parts, and maintains key vehicles in a “ready to respond” condition. The District also has arrangements with West Valley Construction for emergency backhoe and underground work, in the event there is more damage than the District’s staff can manage. West Valley crews would assemble at the District Office and be taken to the emergency work site by District personnel who would also be responsible for operating the valves to isolate the break and oversee the emergency repair work.

**Response.** The goal of the District’s post disaster response actions is to maintain the water transmission and storage system intact and operational to the greatest extent possible. Emergency response protocols specify the leadership role of the on-call worker if the emergency is in off-hours. The response plan is very specific with regard to operating protocols for the supply pumps and the monitoring of tank levels to ascertain the presence of significant leaks or pipeline breaks. The San Andreas fault runs through the District, and the District must be prepared for the possibility of pipeline breaks due to fault rupture.

Procedures for maintaining communication with the on-site personnel and other emergency service workers such as fire and police operations are established, as are the procedures for activating interconnections with either of two adjoining systems.

The Emergency Operations Plan also calls for staff at the emergency operations center to assemble information logs on the service activities, equipment and material used, estimates of damage, records of mutual aid or assistance requested, financial expenditures, etc. If necessary, the Board of Directors would be contacted for authorization of emergency expenditures.

The repair or shut down work would be coordinated from the District Office and field crews would report progress to the emergency operations team. Regular progress reports would then be filed with the appropriate Police and/or Fire Department personnel.

The Emergency Operating Plan specifically addresses a several potential emergency response scenarios particularly including earthquakes, major pipeline breaks, and bacterial or chemical contamination of the water supply.

**Interties and Back-Up Supplies.** As noted in section III, H, above, the District has interties with the adjoining water systems operated by the North Coast County Water District and the City of Daly City, and the District shares a water storage tank with the North Coast County Water District. Since these agencies are largely supplied by the SFPUC, these sources would not be



available during a drought or regional disaster, but they could be used to augment supplies in the event of a local emergency.

## C. WATER SUPPLY SHORTAGES

The Westborough Water District has in the past, and will continue in the future, to respond to water supply shortages on an individual basis as they develop. Generally, for droughts or any other long-term water supply shortage, the District will implement a program of water conservation measures that will result in use restrictions proportional to the severity of the reductions needed. In the past, such use restrictions have been associated with droughts.

As described in Chapter V, B, above, the SFPUC is expected to require that the wholesale customers reduce their aggregate demand on the Hetch Hetchy system by 10% in a single dry year and by 20% in any subsequent dry years, assuming single and three-year drought scenarios. Under the SFPUC/BAWSCA Tier One and Tier Two agreements and formulas that have been developed to fairly allocate the potential cutbacks between a) San Francisco city and suburban areas, and b) among the 26 wholesale purchasers. The Westborough Water District's supply allocations during the drought scenarios would be reduced, however because the District uses less than its available supply in normal years, no supply reductions are expected to be would be required in drought years.

As can be seen in Table 16, it is unlikely that Westborough will have to ask its customers to respond to reasonably foreseeable drought conditions because the projected demand is low relative to the District's supply allocation and in actual terms as demonstrated by the District's low per capita consumption numbers.

The District has experience with programs of voluntary and mandatory rationing developed in response to the increasingly severe shortages in 1989 – 1992, and was successful in reducing overall demand by over 30% during that drought. This experience provides the District with its model for planning future responses to severe water shortages, should it be necessary. This plan was updated in the 2000 UWMP and is described below.

**Four-Stage Plan.** The District's four-stage plan of increasingly stringent rationing is presented in Table 17. Stage One is an example of the type of program that would be implemented if there were a 5% to 10% reduction in supplies. Stage Two would be a mandatory program with specific water waste prohibitions and customer allocations enforced with excess use charges. Stage Three would have higher conservation requirements, especially for landscaping. It would also require proof of customer installation of water conserving fixtures before District consideration of any hardship requests for increases in allotments. Stage Four would further decrease allotments and would cut off all water to landscape meters. There would also be a moratorium on new connections and new landscaping.

**TABLE 16**  
**SUPPLY AND DEMAND COMPARISONS**  
**NORMAL AND DROUGHT SCENARIOS**  
**in mgd**

		2015	2020	2025	2030	2035
Normal Year	Supply	1.08	1.32	1.32	1.32	1.32
	Demand	0.89	0.88	0.87	0.85	0.84
Single Dry Year	Supply	0.94	1.053	1.053	1.053	1.053
	Demand	0.89	0.88	0.87	0.85	0.84
	Westborough Reduction Requirement	0	0	0	0	0
Multiple Dry Year – First Year	Supply	0.94	1.053	1.053	1.053	1.053
	Demand	0.89	0.88	0.87	0.85	0.84
	Westborough Reduction Requirement	0	0	0	0	0
Multiple Dry Year – Second Year	Supply	0.94	0.914	0.914	0.914	0.914
	Demand	0.89	0.88	0.87	0.85	0.84
	Westborough Reduction Requirement	0	0	0	0	0
Multiple Dry Year – Third Year	Supply	0.94	0.914	0.914	0.914	0.914
	Demand	0.89	0.88	0.87	0.85	0.84
	Westborough Reduction Requirement	0	0	0	0	0

Based on the District's existing low water use and the projected low growth rates, it appears that the District would have little difficulty achieving any of the foreseeable water conservation goals that might be imposed on the District by the San Francisco Water Department. It is important to recognize that the programmatic responses in all the stages are planning guidelines; the District's actual response to a water shortage emergency will always require action by the Board of Director's and nothing in this Plan is intended to limit the District's

available options in tailoring a unique and specific program to respond to any future water shortages.

**TABLE 17**  
**WATER SHORTAGE RESPONSES**  
**A Sample Program of Staged Responses**

	<i>Stage One<sup>a</sup></i>	<i>Stage Two<sup>b</sup></i>	<i>Stage Three<sup>c</sup></i>	<i>Stage Four<sup>d</sup></i>
Type of Program	Voluntary	Mandatory	Mandatory	Mandatory
Conservation Goal	5% - 10%	10% - 20%	25% - 30%	50%
Potential Allocations <sup>a</sup>	SFD's: 6 hcf/mo MFD's: 5 hcf/mo Comm.: 90% Irrig.: 60%	SFD's: 5.5 hcf/mo MFD's: 4.5 hcf/mo Comm.: 70% Irrig.: 60%	SFD's: 5 hcf/mo MFD's: 4 hcf/mo Comm.: 60% Irrig.: 40%	SFD's: 3.6 hcf/mo MFD's: 2.8 hcf/mo Comm.: 40% Irrig.: 10%
District Actions	Initiate informational campaign	Establish allocations; Ban wasteful water uses; Intensify leak detection; Intensify public education	Establish more stringent allocations; Require retrofits prior to review of hardship exemptions; Increase rates	Reduce allocations further; Monitor use weekly, if necessary; End deliveries to landscape meters; Prohibit new connections
Customer Actions	Reduce water consumption	Further reduce use; Comply with water waste ordinance	Conform with allocations; Comply with landscape irrigation restrictions	Conform with allocations; Monitor usage weekly or daily; No new landscaping
Penalties	Education visit	Excess use charges; Citations; Flow restriction; Shutoff	Excess use charges; Citations; Flow restriction; Shutoff	Excess use charges; Citations; Flow restriction; Shutoff
<sup>a</sup> Stage One Allocations would result in a 9.5% consumption reduction assuming 2020 population. <sup>b</sup> Stage Two Allocations would result in a 10.5% consumption reduction assuming 2020 population. <sup>c</sup> Stage Three Allocations would result in a 28.8% consumption reduction assuming 2020 population. <sup>d</sup> Stage Four Allocations would result in a 51.5% consumption reduction assuming 2020 population.				

**Mandatory Prohibitions to Reduce Water Use.** In the past, the District has implemented a number of increasingly broad mandatory restrictions on water use in response to increasingly severe water shortages. The Stage One (voluntary) and Stages Two and Three (mandatory) water rationing programs would include prohibitions on wasteful use of water such as any use which results in runoff to gutters or streets, use of water to clean hard surfaces such as sidewalks, driveways, patios, etc., use of water for vehicle washing except with a positive-shutoff nozzle, service of water in restaurants except on request, etc. The Stage Four program would incorporate even more restrictive prohibitions such as total prohibitions on the use of water for certain construction purposes, for any swimming pools, for all car washing, or for any new landscaped areas.

As noted in the previous section, the District's response to a Stage Two through Stage Four water shortage would include mandatory reductions in water use specified by user category.

**Consumption Limits.** The District's response to any recognized water shortage requiring the adoption of a mandatory water rationing program would include consumption limits on a per capita or per connection basis from a normal base year level of usage or from San Francisco Water Department normal year allocations. The District's program would involve higher limitations on water used outdoors than on indoor water use.

**Penalties or Charges for Excess Use.** In past water shortages, the District's conservation pricing structure has added an extra tier with a much higher unit cost for water use higher than base year use in the comparable period. This is effectively an excess use charge. It is expected that in the future, any mandatory water-rationing program adopted by the District would include similar modifications to the rate structure.

**Impacts on Revenues and Expenditures.** Successful water rationing programs lead to reduced water sales and revenues to the District. However, the District's expenditures do not decline in proportion to reduced sales, because such a large part of the expenditures are related to fixed capital costs or on-going maintenance and operations. Consequently, water rates must typically be increased during years of water shortages, when water-rationing programs are implemented. The District's Plan anticipates the necessity of rate increases in the Stage 3 level of shortage.

To minimize the potential financial impacts of a water shortage contingency, the District maintains a capital reserve fund that has been accumulated over past years. The fund currently totals over \$2.5 million, and could be used to fund special emergency response costs or offset revenue lost due to reduced water sales in emergency or water shortage conditions.

The administration of a water-rationing program will also have a definite, but relatively small, impact on the District's general and administrative costs, which must be considered whenever the District's budget is adopted during a water short year.

Revenue from excess use charges is received whenever mandatory water rationing is in effect. These additional revenues can be applied toward administration of the program, or to other programs. Excess use charges, however, cannot make up for the lost revenue from reduced water sales.

**Draft Ordinance.** The Westborough Water District has had actual experience in the implementation of programs very similar to the Stage One through Stage Three programs. The ordinances implementing the past water rationing programs will serve as the model ordinances for any future programs.

**Mechanism For Determining Actual Reductions.** Since all Westborough Water District customers are metered and the sources of supply are metered, the District is able to measure the effectiveness of any water shortage contingency plan that is implemented. As can be seen in Tables 6 through 9, the District collects sufficient data, in the normal course of operations, to determine actual compliance.

# VI. URBAN WATER MANAGEMENT PLAN PROGRAMS

## A. INTRODUCTION

This chapter describes and evaluates the Westborough Water District's Urban Water Management programs for the 2011 - 2015 period. It summarizes the water conservation programs that were in effect prior to preparation of this *Urban Water Management Plan*, as well as the programs that are being continued and refined in the present Plan. This chapter also draws upon the conservation programs described and developed in the BAWSCA's *Water Conservation Implementation Plan*.<sup>1</sup>

The Westborough Water District is a signatory to the *Memorandum of Understanding regarding Urban Water Conservation in California* (MOU) and is therefore a member of the California Urban Water Conservation Council (CUWCC). The MOU contains 14 demand management measures which signatories to the MOU agree to make good faith efforts to implement in order to optimize water savings. The CUWCC calls these demand management measures Best Management Practices (BMPs). In the *Urban Water Management Planning Act* they are termed DMMs (Demand Management Measures). The BMPs/DMMs are examples of sound water management practices that have been found to be cost effective and practicable in most instances throughout California. Considering that the Westborough Water District enjoys an exceptionally low level of urban water consumption on a per capita basis, the District has determined that it would have low marginal benefits from implementation of some of the DMMs/BMPs. The District's water conservation programs that are being implemented are presented below, in accordance with the UWMP requirements for DMM reporting.

The SFPUC's *Wholesale Customer Water Conservation* study used the Decision Support System (DSS) model to evaluate the cost-effectiveness of implementing 32 conservation measures over a 30-year planning period for all 26 wholesale customers, including the Westborough Water District. Westborough will continue to utilize this cost-effectiveness evaluation to assess its current and future water conservation priorities.

## B. PREEXISTING WATER CONSERVATION PROGRAMS

A number of important water conservation policies and practices had been implemented by the District even prior to the preparation of its 1996 *Urban Water Management Plan*. These measures include the following:

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<sup>1</sup> BAWSCA, *Water Conservation Implementation Plan*, 2009 (Maddus Water Management; Brown and Caldwell).

## **1. METERING**

All District water connections are metered. This practice is recognized as sound urban water management practice as well as a basic water conservation measure (DMM D). The District's sources of supply are also metered, and the supply meters can be cross-checked against sales data to allow the District to identify water lost in the transmission/distribution system.

## **2. MAINTENANCE OF WATER USE RECORDS BY USER TYPE**

While the record keeping itself does not save water, the data it provides is fundamental to evaluating the effectiveness of water conservation programs.

## **3. SYSTEM PRESSURE CONTROL PROGRAM**

The District operates with 3 pressure zones and has installed a number of pressure reduction stations at locations throughout the District so as to reduce high static pressures in its system and at individual water connections. In addition, WWD requires customers to install a pressure reducing valve on their service connection if the District's pressure at that location exceeds 60 psi. Pressure management is particularly important for the District because of the topographic variations in the service area. Pressure reducers help conserve water by reducing wastage through faucets limiting quantities lost when fixtures leak or water is inefficiently applied.

## **4. LEAK REDUCTION**

The amount of water lost in the transmission and distribution system is low and is managed by the District through its meter testing and leak detection and repair programs. Most of the District's transmission and distribution pipelines are less than 35 years old and are in good condition. Any leaks that are found are repaired as quickly as possible by the District staff.

Approximately 8-9 years ago the District replaced all of its residential water meters to a touch-read system that is more efficient and reduces operational costs. Any undetected leaking or low-reading meters were removed in conjunction with this District-wide meter replacement program, improving the accuracy and increasing the longevity of all the installed meters.

### **Free Leak Detection Service.**

When requested, the District staff will perform plumbing leak tests, and work with the customer to identify the possible source and recommend appropriate repairs or conservation measures.

### **Inspection of Customer Water Use Records.**

The District's metering and billing system automatically identifies customer accounts where usage has increased by 15%. These flagged records are then reviewed by staff and customers whose usage is either extraordinarily high or increasing at a significant rate is provided written notification of such, along with instructions on how to test for plumbing leaks.

## **5. PUBLIC EDUCATION**

Since the 1988 - 92 drought, the District has had an on-going public relations campaign to encourage water conservation. Representatives of the District's management staff have spoken on water conservation at local service clubs, neighborhood association meetings, etc. In addition, the District's quarterly newsletter, *The Water Faucet*, typically includes one or more articles on water conservation topics.

The District has purchased and developed a number of pamphlets, flyers and information sheets containing water conservation information. These are available at the District office or can be mailed upon request. The following is a partial list of the brochures and leaflets that are currently available from the District:

- Water - Every Drop Counts
- Water Conservation
- Safe Drinking Water
- Wise Water Use - Outdoors
- Ground Water
- About Wastewater Treatment
- How to Read Your Water Meter

## **6. DEMONSTRATION GARDEN**

The District has re-landscaped its office and sewage pump station grounds with low water use plants from a palette of California native shrubs and flowers. These planted areas serve as an example of how a residence can be attractively landscaped without the use of grass and other plantings that require large amounts of water.



## **C. DEMAND MANAGEMENT PROGRAMS - 2010 - 2015**

### **1. DMM A. WATER SURVEY PROGRAMS FOR SINGLE-FAMILY AND MULTI-FAMILY RESIDENTIAL CUSTOMERS**

**PAST EFFORTS.** The District routinely responds to customer concerns about possible leaks or high water bills. In addition, the District's meter data and billing system alerts billing clerks to unusual changes in water consumption by comparing past water usage with the current billing data. Customers are notified of any apparent anomalies and are offered free water conservation kits and/or assistance from District staff in checking for potential causes of the identified increases in water use.

As a result, operations personnel have visited many homes and business establishments to conduct plumbing inspections to determine if there is a leak or other source of wasted or misused water. A number of malfunctioning toilets, faucets and irrigation devices are discovered and repaired annually as a result of this program.

In 2003 and 2004, the District actively promoted a program of water surveys to all of its single-family accounts. Approximately 250 surveys were conducted.

In 2004, residential water surveys were evaluated in the DSS Model for SFPUC Wholesale Customers, and for Westborough, it was determined that the benefit-cost ratio would be 0.8 with a projected cost of \$2,581 per million gallons of water saved. This unfavorable benefit-cost ratio confirms the District's experience that the program was staff intensive, with limited overall benefits. The District concluded that an aggressive residential water survey program was not be the most effective way to use the District's limited resources, and is exempting itself from DMM further implementation of DMM A.

However, the District has continued to offer free water surveys through in its newsletter. This approach is successful in eliciting responses from customers concerned about their water bills and also open to conservation initiatives.

**IMPLEMENTATION.** The District will continue to notify customers with anomalous increases in water consumption when identified by billing records and will offer free home water audits and conservation kits upon request.

### **2. DMM B. RESIDENTIAL PLUMBING RETROFIT**

**PAST EFFORTS.** The District has operated a voluntary residential water conservation program encouraging plumbing retrofits since the severe drought of 1976-77, although the program was given extra emphasis during the years when mandatory conservation was in effect.

The program included the distribution of water conservation kits containing informational packets, showerhead flow restrictors, toilet dams and dye tablets for toilet leak detection. The District keeps retrofit kits in stock and offers them to customers on request. The District informs customers of the availability of the kits in its regular customer newsletter, *The Faucet*.

**IMPLEMENTATION.** The District will continue to distribute plumbing retrofit kits containing low flow showerheads, faucet aerators for bathroom and kitchen sinks, faucet aerators with shut-off valves and dye tablets. This will be done in conjunction with DMM G (Public Information) and would be intended to also meet the compliance criteria established by the CUWCC for this BMP (BMP 2.1).

The DSS model Conservation Measures Evaluation for this DMM calculated a benefit-cost ratio for Westborough for this DMM of 2.8. The projected cost of implementation for each million gallons of water saved was calculated to be \$867.

The District's program of distributing home water conservation kits in response to customer concerns about high water bills or in the course of investigations for potential residential leaks will be continued (DMM A).

### **3. DMM C. DISTRIBUTION SYSTEM AUDITS AND LEAK DETECTION AND REPAIR**

**PAST EFFORTS.** At the conclusion of each calendar year the District conducts a water audit to determine the amount of unmetered water, a portion of which is considered lost, or unaccounted-for, water attributable to leaks, under-reporting meters or even theft.

The District repairs all leaks in the distribution system as quickly as possible after they are detected. Even minor leaks are reported by the meter readers and are investigated after the meter reading work is complete. The District's pipeline system is relatively young and is considered to be in good condition, and is not particularly leak prone.

The District also tests and calibrates all large meters every 4 - 5 years, and all of the District's small meters are less than 10 years old.

**IMPLEMENTATION:** The District will continue its operational practices involving the regular monitoring of unmetered water, and will institute system wide audits or leak detection efforts when unaccounted-for water exceeds 10% of production, a level the District has exceeded in

only two of the past 20 years. Because its unaccounted water volumes have been consistently within acceptable ranges, the District considers itself to be in compliance with DMM 3.

The District recognizes the value of system audits and leak detection programs in reducing water losses and in minimizing the volume of unmetered water, and is committed to maintaining a highly efficient water distribution system.

#### **4. DMM D. METERING WITH COMMODITY RATES**

**CURRENT PROGRAM.** The Westborough Water District is fully metered and bills all customers by volume of use. The current rate is \$4.05 per hcf unit (748 gallons).

**IMPLEMENTATION.** This DMM is being fully implemented.

#### **5. DMM E. LARGE LANDSCAPE CONSERVATION PROGRAMS AND INCENTIVES**

**PAST EFFORTS.** The majority of the District's irrigation accounts are for the City of South San Francisco, with irrigation meters at serving Westborough Park, Seltick Park and a number of median strip areas. In addition, the School District has a significant irrigation water demand for the fields at Westborough Middle School. The cost of water has proven to be the primary incentive for these users to carefully manage their water usage and initiate water conservation efforts.

**IMPLEMENTATION:** The District will work with its largest irrigation water customers to support all efforts to improve efficiency and encourage conservation.

For large commercial or institutional accounts without dedicated irrigation meters (but with large landscape irrigation use) the District will offer the following services when found to be cost effective:

- a. Preparation of a voluntary water use budget;
- b. Installation of a dedicated landscape water meter.

The evaluation of this conservation measure by the DSS Model indicated that it would have a benefit/cost ratio of 18.3 for Westborough with a cost of \$110 for each million gallons saved, and a potential long-term demand reduction of 14.6 AFY. Because of this favorable benefit/cost ratio, this DMM will be given a high priority for implementation.

#### **6. DMM F. HIGH-EFFICIENCY WASHING MACHINE REBATE PROGRAM**

**PAST EFFORTS.** The District currently offers rebates of \$75.00 to residential customers purchasing high-efficiency clothes washers meeting the Federal *Energy Star* criteria. These

washers have a water use factor of 6.0 or less. Since the program was initiated in 2001 a total of 468 rebates have been awarded, equivalent to approximately 12.6% of the District's residential connections. The CUWCC BMP Cost and Savings Study estimates that the average water savings for a high-efficiency clothes washer is as much as 5,100 gallons a year. Therefore, the District is receiving a conservation benefit of as much as 2.39 mg a year (7.3AFY) with a corresponding rebate cost of approximately \$35,000.

**IMPLEMENTATION.** The District intends to continue offering High Efficiency Washing Machine Rebates for the foreseeable future, although the rebate qualification standards will be reviewed regularly as the state-adopted plumbing code standards become more restrictive. The District's goal will be to provide incentives for appliances that are more water efficient than the current minimum standards.

## 7. DMM G. PUBLIC INFORMATION

**PAST EFFORTS.** The Westborough Water District has an on-going public information program and has conducted community outreach and public education activities in past years. In the early 1990's the public information program efforts were aimed at motivating people to respond to the specific drought emergencies that were occurring, while in recent years the public information efforts have focused on general water conservation and wise water use.

**IMPLEMENTATION:** Activities that have been accomplished in past years and will be continued in the coming years include the following:

**Brochures and Flyers.** The District prepares and mails *The Faucet* newsletter to all customers on a quarterly basis. The newsletters have included articles and information on water conservation such as "10 Tips for Saving Water in Your Home" and have informed customers of the types of assistance the District can offer to help customers conserve. They have also included yearly water quality reports to customers.

Water conservation messages such as Water Conservation and Wise Water Use/Outdoors are also routinely included in District communications with customers questioning bills, or raising other related questions.

Water conservation flyers and brochures have been kept at the reception desk in the District Office and made available to interested customers coming to pay bills or make inquiries. Many brochures have been distributed through this means.

In the event of a drought or pending drought the District will use general mailings, separate from the bi-monthly billings, to announce water conservation programs, whether voluntary or mandatory, and to appeal to customers to reduce their water consumption. These efforts would be supported with stepped-up public information initiatives using a variety of local media outlets.

**Bill Stuffer Inserts.** The District has the ability to distribute informational water bill inserts. They can be obtained from BAWSCA, AWWA and other sources, or developed in-house. The District will continue to use bill stuffer inserts to communicate with customers throughout the term of this plan.

**Past Usage Information.** The District includes past usage information on customer bills and will continue to do so in coming years.

**Press Releases.** In past dry years, mandatory water conservation programs implemented by the District have been announced with articles in local newspapers. In the event of a future drought, the District will again implement an active public relations effort to reinforce the need for active citizen participation in the conservation effort.

**Demonstration Gardens.** The District maintains a Demonstration Gardens at its office (2263 Westborough Boulevard) and the nearby pump station site. The gardens showcase drought tolerant landscape plantings that are appropriate for South San Francisco.

**Landscaping Classes.** The District is promoting the Water Efficient Landscape classes sponsored by BAWSCA on its website and in its newsletter. BAWSCA offers a total of 25 free classes on a variety of topics ranging from *Designing Water Efficient Landscaping* to *Water-Wise Organic Vegetable Gardening* and including several classes relating to the replacement of *Thirsty Lawn with California Natives*. All of the classes are free to Westborough customers.

The SFPUC's *Wholesale Water Conservation Potential* study found that a robust public information program would have a low (1.1) benefit-cost ratio for Westborough. This is based on an investment of about \$2 per year per single-family residential account. The District's program costs for public information have typically been lower. The District will continue the on-going program because its costs have been reasonable and because it is important to continue reminding customers of the importance of water conservation.

## 8. DMM H. SCHOOL PROGRAMS

**AVAILABLE RESOURCES.** The Westborough Water District is a member of (BAWSCA, which provides assistance in the implementation of a school programs consistent with DMM H. BAWSCA's *Water Wise* program for fifth graders involves a teacher training exercise and a take-home kit for each student with a water efficient showerhead, faucet aerators, toilet dye tablets, and literature for both students and parents. In addition, BAWSCA offers an "Earthcapade" student assembly program. EarthCapades performances combine age-appropriate state science standards with circus skills, juggling, music, storytelling, comedy, and audience participation to teach environmental awareness, water science and conservation.

**PAST EFFORTS.** The District's General Manager has contacted local schools in the past with an offer to support their participation in BAWSCA programs such as the current Water Wise program, EarthCapades assemblies, and previous local and regional poster contests with a "Use Water Wisely" theme. To date, no one in the schools has expressed interest.

**IMPLEMENTATION.** The District will again contact the local schools to encourage participation in the BAWSCA school programs, and will consider funding support if the schools show interest in implementing a water education component to their curriculum.

## **9. DMM I. CONSERVATION PROGRAMS FOR COMMERCIAL, INDUSTRIAL AND INSTITUTIONAL (CII) ACCOUNTS**

**PAST EFFORTS.** The District has only about 80 commercial and institutional accounts. There are no industrial accounts. In aggregate, these customers account for about 17% of total water sales. Six of these accounts are for multi-family residential complexes containing almost 550 apartments, and accounting for at least one-third of the sales in this category. Most of the other customers in this billing category are small retail businesses. The District has responded to all requests for water audits and conservation suggestions from customers in these categories as they have been made.

The District reviews the landscape plans and inside water fixture appliances for all new commercial/industrial customers. This ensures that landscaping and water fixtures that require low water use are installed before the new customer is connected to the District's system.

**DESCRIPTION.** The implementation program for CII conservation as set forth in the CUWCC's BMP program is very detailed and staff intensive. It would require the District to identify and rank all CII users by sector, contact the largest accounts and offer and conduct water surveys for them. The BMPS all call for establishing a low flow toilet rebate program for these customers.

The SFPUC *Wholesale Customer Water Conservation Potential* study evaluated several commercial water conservation measures that are essentially equivalent to these BMPs. According to the DSS Model results, Westborough would have a marginally favorable benefit-cost ratio for water audits, although the benefit-cost ratio for a ULF Toilet and Urinal Rebate program would be much stronger, at 8.4 and with a projected cost of \$284 for each mg saved.

**IMPLEMENTATION.** In 2004, the District began offering ULFT rebates to commercial accounts. This program was evaluated after the first year and then continued. It is still in effect, and is expected to continued.

## **10. DMM J. WHOLESALE AGENCY ASSISTANCE PROGRAMS**

**DESCRIPTION.** This demand management BMP requires wholesale water suppliers to provide financial incentives, or equivalent resources, to their retail water agency customers for the advancement of water conservation efforts.

**IMPLEMENTATION.** Since the Westborough Water District is not a wholesale water supplier, this BMP would not be applicable to the District.

## **11. DMM K. CONSERVATION PRICING**

**EXISTING RATE STRUCTURE.** The Westborough Water District has a uniform, volume of use rate for all customers. The current rate is \$3.32 per unit, and an increase to \$4.05 is under consideration (1 unit = 100 cubic feet = 748 gallons). In addition, all customers are billed a bi-monthly base charge determined by the size of the meter.

The Westborough Water District also provides sewage collection services. The fees for this service are derived from the volume of water used by each customer in January and February. The current sewer service rate is \$5.73/hcf, and is billed on the property tax bills.

**IMPLEMENTATION.** The Water District will continue implementing a conservation pricing rate structure for both water and sewer services.

## **12. DMM L. CONSERVATION COORDINATOR**

**DESCRIPTION.** This BMP calls for the agency to designate a water conservation coordinator and support staff (if necessary) whose duties are to include the coordination and oversight of conservation programs, the preparation and submittal of annual BMP Implementation Reports, the coordination of conservation programs with operations staff and with management, and related activities.

**IMPLEMENTATION.** The Westborough Water District is a small district has a very small staff. The water conservation responsibilities are not so large as to require a full time position, so the District has divided the responsibilities of Water Conservation Coordinator between two staff members.

## **13. DMM M. WATER WASTE PROHIBITION**

**DESCRIPTION.** This BMP calls for water agencies to enact and enforce certain prohibitions against wasteful water use on an on-going basis, i.e. during drought and non-drought periods. The ordinances should prohibit, at a minimum, gutter flooding, non-recirculating fountains, non-recirculating systems in any new car wash or commercial laundry installations, and any new single-pass cooling systems.

**PAST ACTIVITIES.** The Westborough Water District has prohibited the waste of water as well as a number of non-essential uses of water in conjunction with water rationing programs that were implemented in 1990 and 1991. In these situations the District's ordinances prohibited non-essential water uses, which were defined as uses in excess of the specific allotments, which varied by meter size. In addition, a number of defined uses of water were also prohibited as non-essential uses. These ordinances were enforced with excess use charges, warnings, and ultimately, a disconnection of service. The ordinances were suspended when the water shortage emergencies ended.

**IMPLEMENTATION.** In 2010, the District implemented a Water Conservation in Landscaping Ordinance, which sets water waste prevention standards for landscaped areas. In order to implement DMM M more comprehensively, the District will consider adoption of an ordinance prohibiting wasteful water use in a broader range of circumstances. The ordinance could cover the wasteful water practices mentioned in the DMM as well as several others that would be relevant in the community. As an example, it could prohibit:

- a) Use of water when the customer has been given notice to repair broken plumbing, sprinkler, or irrigation systems and has not done so after 10 days;
- b) Use of water which results in flooding or runoff to gutters or streets;
- c) Use of water for washing vehicles with a hose, unless the hose has a positive shutoff nozzle or valve;
- d) Use of landscape irrigation water that results in runoff to the street or pooling due to super-saturation of the ground;
- e) Use of water for cooling purposes;
- f) Use of water by new a commercial carwashes unless it is recycled through on-site filter systems.

## **14. DMM N. ULTRA LOW FLUSH TOILET REPLACEMENT**

**PAST ACTIVITIES.** The District has an on-going ULFT rebate program for residential customers. Since the program was initiated in 2001 a total of 522 rebates have been awarded. Currently rebates of \$50 are available for installation of ultra-low-flush toilets.

**IMPLEMENTATION.** The District believes that the ULFT rebate program is effective and plans to continue it for the foreseeable future.

## **15. OTHER CONSERVATION PROGRAMS**

In the *Water Conservation Implementation Plan* (2009), BAWSCA evaluated a suite of potential conservation measures with the goal of identifying a group that could be feasibly implemented and achieve the goal of reducing water consumption among the BAWSCA members by 10 mgd by 2018. The screening process reviewed potential water conservation measures included in the



2004 SFPUC's *Wholesale Customer Water Conservation Potential* report plus 18 potential new measures. The screening and evaluation considered targeted customer types, range in unit costs, and potential water savings. Five conservation programs were selected for implementation. They include:

1. High Efficiency Toilet Rebate Program
2. Education/Training Program for Residential Landscape Water Use Efficiency
3. High Efficiency Washing Machine Rebates
4. New Building Indoor Water Efficiency Regulations
5. New Building Landscape Water Efficiency Regulations

BAWSCA has determined that implementation of these measures on a regional basis has the potential to achieve a water savings of 8.4 mgd by 2018, and, as a member of BAWSCA, the Westborough Water District intends to implement all of these programs. Programs 1-3 are incorporated into DMMs 6, 7 and 14, as described above.

Programs 4 and 5 are also being implemented by District, through the adoption and enforcement of Ordinances 58 and 59, which are described below:

**Indoor Water Conservation Regulations.** In 2010, the District adopted Ordinance 58 establishing indoor water conservation regulations. The regulations apply to new construction (residential and non-residential) and to remodels with a value over \$150,000. The regulations require water-conserving fixtures that meet specific standards, and sets specific standards for a number of non-residential fixtures and processes including cooling towers, food steamers, pre-rinse valves, car wash facilities and commercial refrigeration. It also requires sub-meters in multi-family residential buildings and separate meters for landscaped areas larger than 5,000 sq. ft. Applicants are required to submit an Indoor Water Use Efficiency Checklist to the local permitting agency (typically South San Francisco) for approval prior to construction.

**Water Conservation in Landscaping Regulations.** In Ordinance 59, (2010) the District established a set of *Water Conservation in Landscaping Regulations*. The Ordinance is based on the State Landscape Model Ordinance, but is more stringent in several important ways and is considered by the District to be "at least as effective as" the Model Ordinance. Westborough's ordinance is applicable to landscapes of 1,000 sq. ft. or larger. It restricts turf to a maximum of 25% of the landscaped area, and requires 80% of the plants in non-turf areas to be native plants, low water using plants or no-water using plants (unless a water budget is adopted). It also requires dedicated landscape meters for landscapes greater than 5,000 sq. ft. The ordinance requires that landscapes over 2,500 sq. ft. have irrigation controllers that utilize evapotranspiration or soil moisture sensor data and sensors that suspend irrigation during unfavorable weather conditions. The ordinance also requires mulch over all exposed soil, layers, and requires all water features to use recirculating water systems. The ordinance also has provisions applicable to existing landscaped areas over 1 acre in size. These provisions require water audits and set water waste prevention standards.

## **D. WASTEWATER DISPOSAL AND WASTEWATER RECLAMATION OPPORTUNITIES**

The Westborough Water District operates and maintains the sewage collection system serving all its customers. Sewage is delivered to the North San Mateo County Sanitation District, a subsidiary of the City of Daly City. The Sanitation District operates a treatment plant in Daly City at 153 Lake Merced Boulevard.

The treatment plant has a permitted capacity of 8 mgd (dry weather flows) and a design capacity of 10.3 mgd. It serves the City of Daly City and portions of South San Francisco, including Westborough. Inflows to the plant averaged 6.3 mgd in 2009.<sup>1</sup> The plant provides secondary treatment and discharges to the Pacific Ocean through an ocean outfall pipe. A portion of the secondary effluent is diverted to a tertiary treatment plant that was completed in 2004. This plant provides reclaimed wastewater for irrigation use on three golf courses, landscape irrigation of highway medians, and in-plant use at the Wastewater Treatment Plant. It has a capacity of 2.77 mgd, equivalent to 3,100 AFY.

**CURRENT USES.** The North San Mateo County Sanitation District is permitted to distribute up to 2.77 mgd of recycled water from the wastewater treatment plant. Currently recycled water is distributed to three golf courses (the Olympic Club, San Francisco Club and Lake Merced Golf Course) and to a city park and median strips on John Daly Boulevard for irrigation use. In 2010, the golf courses used 517 AF, while about 30 AF was used by the City of Daly City in the existing park and median strip irrigation systems that are fitted to receive the recycled water. About 550 AFY is applied to in-plant uses at the wastewater treatment plant.

**PLANNED USES.** The Sanitation District has identified additional alternatives for using the remaining unrestricted recycled water potential from the tertiary treatment plant. Plans are currently being implemented to install a recycled water distribution line to serve Harding Park Golf Course in San Francisco, beginning in 2012. Other possible uses being explored include the use of the recycled water for groundwater recharge or to raise the level of Lake Merced, and the possible extension of distribution lines to other parks, schools, and cemeteries.

**WESTBOROUGH USES.** The Westborough Water District is at the opposite end of the collection system, more than 4.5 miles from the wastewater treatment plant, and at a higher elevation. Although there may be several potential reclaimed water application sites in the Westborough Water District, they have not been inventoried or investigated because it would not be feasible to transport the reclaimed water from the treatment plant to Westborough. Based on this, it is concluded that there are no sources of reclaimed water are likely to become available for WWD customers in the foreseeable future.

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<sup>1</sup> City of Daly City, *Draft Urban Water Management Plan*, May 9, 2011, p. 4-11.

## E. IMPLEMENTATION PROGRAM AND SCHEDULE

Table 18 summarizes the District's implementation program for the *Urban Water Management Plan*. The implementation program is based on a five-year time horizon, beginning in 2006. The schedule is intended to provide general guidance to the District for the enactment of the water conservation programs described in this report. The Board of Directors will maintain full flexibility in funding and scheduling the various programs, and the implementation schedule may be modified as a result of Board actions. As required by State law, the entire plan will be reviewed after five years.

**TABLE 18**  
**IMPLEMENTATION PLAN SUMMARY**

<i>DMM #</i>	<i>Program</i>	<i>2011</i>	<i>2012</i>	<i>2013</i>	<i>2014</i>	<i>2015</i>
1.	Residential Water Surveys	-	-	-	-	-
2.	Residential Plumbing Retrofit	O	O	O	O	O
3.	System Water Audit, Leak Repairs	O	O	O	O	O
4.	Metering with Commodity Rates	O	O	O	O	O
5.	Large Landscape Conservation	D	O	O	O	O
6.	High-Efficiency Washing Machine Rebates	O	O	O	O	O
7.	Public Information Program	O	O	O	O	O
8.	School Programs	O	O	O	O	O
9.	CII Water Conservation	O	-	-	-	-
10.	Wholesale Agency Assistance	NA	NA	NA	NA	NA
11.	Conservation Pricing	O	O	O	O	O
12.	Water Conservation Coordinator	O	O	O	O	O
13.	Water Waste Prohibition	O	O	O	O	O
14.	Ultra Low Flush Toilet Replacement	O	O	O	O	O
15.	Other Measures	O	O	O	O	O
-	Wastewater Reclamation	-	-	-	-	-

**Key to Symbols:**

- = No Activity; Not Cost Effective

O = Ongoing Program

D = Develop Program

NA = Not Applicable



**APPENDIX A**

**DWR CHECKLIST**



**Table A-1 Urban Water Management Plan checklist, organized by subject**

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
<b>PLAN PREPARATION</b>				
4	Coordinate the preparation of its plan with other appropriate agencies in the area, including other water suppliers that share a common source, water management agencies, and relevant public agencies, to the extent practicable.	10620(d)(2)		pps. 3-4
6	Notify, at least 60 days prior to the public hearing on the plan required by Section 10642, any city or county within which the supplier provides water that the urban water supplier will be reviewing the plan and considering amendments or changes to the plan. Any city or county receiving the notice may be consulted and provide comments.	10621(b)		p. 4
7	Provide supporting documentation that the UWMP or any amendments to, or changes in, have been adopted as described in Section 10640 et seq.	10621(c)		Appendix E
54	Provide supporting documentation that the urban water management plan has been or will be provided to any city or county within which it provides water, no later than 60 days after the submission of this urban water management plan.	10635(b)		Appendix E
55	Provide supporting documentation that the water supplier has encouraged active involvement of diverse social, cultural, and economic elements of the population within the service area prior to and during the preparation of the plan.	10642		Appendix E
56	Provide supporting documentation that the urban water supplier made the plan available for public inspection and held a public hearing about the plan. For public agencies, the hearing notice is to be provided pursuant to Section 6066 of the Government Code. The water supplier is to provide the time and place of the hearing to any city or county within which the supplier provides water. Privately-owned water suppliers shall provide an equivalent notice within its service area.	10642		Appendix E
57	Provide supporting documentation that the plan has been adopted as prepared or modified.	10642		Appendix E
58	Provide supporting documentation as to how the water supplier plans to implement its plan.	10643		Table 18, p. 58

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
59	Provide supporting documentation that, in addition to submittal to DWR, the urban water supplier has submitted this UWMP to the California State Library and any city or county within which the supplier provides water supplies a copy of its plan no later than 30 days after adoption. This also includes amendments or changes.	10644(a)		Appendix E
60	Provide supporting documentation that, not later than 30 days after filing a copy of its plan with the department, the urban water supplier has or will make the plan available for public review during normal business hours	10645		Appendix E
<b>SYSTEM DESCRIPTION</b>				
8	Describe the water supplier service area.	10631(a)		p. 5; Figs. 1 -3
9	Describe the climate and other demographic factors of the service area of the supplier	10631(a)		p. 9-10; Table 2
10	Indicate the current population of the service area	10631(a)	Provide the most recent population data possible. Use the method described in "Baseline Daily Per Capita Water Use." See Section M.	Table 3; p. 10
11	Provide population projections for 2015, 2020, 2025, and 2030, based on data from State, regional, or local service area population projections.	10631(a)	2035 and 2040 can also be provided to support consistency with Water Supply Assessments and Written Verification of Water Supply documents.	Table 3, p. 10
12	Describe other demographic factors affecting the supplier's water management planning.	10631(a)		P. 10 (Population Stable)
<b>SYSTEM DEMANDS</b>				
1	Provide baseline daily per capita water use, urban water use target, interim urban water use target, and compliance daily per capita water use, along with the bases for determining those estimates, including references to supporting data.	10608.20(e)		pps. 23-24; Fig. 5, p. 19
2	<i>Wholesalers:</i> Include an assessment of present and proposed future measures, programs, and policies to help achieve the water use reductions. <i>Retailers:</i> Conduct at least one public hearing that includes general discussion of the urban retail water supplier's implementation plan for complying with the Water Conservation Bill of 2009.	10608.36 10608.26(a)	Retailers and wholesalers have slightly different requirements	Appendix E



No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
3	Report progress in meeting urban water use targets using the standardized form.	10608.40		p. 23
25	Quantify past, current, and projected water use, identifying the uses among water use sectors, for the following: (A) single-family residential, (B) multifamily, (C) commercial, (D) industrial, (E) institutional and governmental, (F) landscape, (G) sales to other agencies, (H) saline water intrusion barriers, groundwater recharge, conjunctive use, and (I) agriculture.	10631(e)(1)	Consider 'past' to be 2005, present to be 2010, and projected to be 2015, 2020, 2025, and 2030. Provide numbers for each category for each of these years.	Past & Current: Table 7&8, p. 20; Table 9, -. 22; Projected: Table 12, p. 27
33	Provide documentation that either the retail agency provided the wholesale agency with water use projections for at least 20 years, if the UWMP agency is a retail agency, OR, if a wholesale agency, it provided its urban retail customers with future planned and existing water source available to it from the wholesale agency during the required water-year types	10631(k)	Average year, single dry year, multiple dry years for 2015, 2020, 2025, and 2030.	Table 12, p. 27
34	Include projected water use for single-family and multifamily residential housing needed for lower income households, as identified in the housing element of any city, county, or city and county in the service area of the supplier.	10631.1(a)		p. 28
<b>SYSTEM SUPPLIES</b>				
13	Identify and quantify the existing and planned sources of water available for 2015, 2020, 2025, and 2030.	10631(b)	The 'existing' water sources should be for the same year as the "current population" in line 10. 2035 and 2040 can also be provided.	pps. 11, 12
14	Indicate whether groundwater is an existing or planned source of water available to the supplier. If yes, then complete 15 through 21 of the UWMP Checklist. If no, then indicate "not applicable" in lines 15 through 21 under the UWMP location column.	10631(b)	Source classifications are: surface water, groundwater, recycled water, storm water, desalinated sea water, desalinated brackish groundwater, and other.	NO; p. 12
15	Indicate whether a groundwater management plan been adopted by the water supplier or if there is any other specific authorization for groundwater management. Include a copy of the plan or authorization.	10631(b)(1)		NA
16	Describe the groundwater basin.	10631(b)(2)		NA
17	Indicate whether the groundwater basin is adjudicated? Include a copy of the court order or decree.	10631(b)(2)		NA

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
18	Describe the amount of groundwater the urban water supplier has the legal right to pump under the order or decree. If the basin is not adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		NA
19	For groundwater basins that are not adjudicated, provide information as to whether DWR has identified the basin or basins as overdrafted or has projected that the basin will become overdrafted if present management conditions continue, in the most current official departmental bulletin that characterizes the condition of the groundwater basin, and a detailed description of the efforts being undertaken by the urban water supplier to eliminate the long-term overdraft condition. If the basin is adjudicated, indicate "not applicable" in the UWMP location column.	10631(b)(2)		NA
20	Provide a detailed description and analysis of the location, amount, and sufficiency of groundwater pumped by the urban water supplier for the past five years	10631(b)(3)		NA
21	Provide a detailed description and analysis of the amount and location of groundwater that is projected to be pumped.	10631(b)(4)	Provide projections for 2015, 2020, 2025, and 2030.	NA
24	Describe the opportunities for exchanges or transfers of water on a short-term or long-term basis.	10631(d)		p. 20
30	Include a detailed description of all water supply projects and programs that may be undertaken by the water supplier to address water supply reliability in average, single-dry, and multiple-dry years, excluding demand management programs addressed in (f)(1). Include specific projects, describe water supply impacts, and provide a timeline for each project.	10631(h)		pps. 13-16
31	Describe desalinated water project opportunities for long-term supply, including, but not limited to, ocean water, brackish water, and groundwater.	10631(i)		p. 12; pps. 56-57
44	Provide information on recycled water and its potential for use as a water source in the service area of the urban water supplier. Coordinate with local water, wastewater, groundwater, and planning agencies that operate within the supplier's service area.	10633		pps. 56-57
45	Describe the wastewater collection and treatment systems in the supplier's service area, including a quantification of the amount of wastewater collected and treated and the methods of wastewater disposal.	10633(a)		pps. 56-57
46	Describe the quantity of treated wastewater that meets recycled water standards, is being discharged, and is otherwise available for use in a recycled water project.	10633(b)		pps. 56-57

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
47	Describe the recycled water currently being used in the supplier's service area, including, but not limited to, the type, place, and quantity of use.	10633(c)		pps. 56-57
48	Describe and quantify the potential uses of recycled water, including, but not limited to, agricultural irrigation, landscape irrigation, wildlife habitat enhancement, wetlands, industrial reuse, groundwater recharge, indirect potable reuse, and other appropriate uses, and a determination with regard to the technical and economic feasibility of serving those uses.	10633(d)		pps. 56-57
49	The projected use of recycled water within the supplier's service area at the end of 5, 10, 15, and 20 years, and a description of the actual use of recycled water in comparison to uses previously projected.	10633(e)		pps. 56-57
50	Describe the actions, including financial incentives, which may be taken to encourage the use of recycled water, and the projected results of these actions in terms of acre-feet of recycled water used per year.	10633(f)		pps. 56-57
51	Provide a plan for optimizing the use of recycled water in the supplier's service area, including actions to facilitate the installation of dual distribution systems, to promote recirculating uses, to facilitate the increased use of treated wastewater that meets recycled water standards, and to overcome any obstacles to achieving that increased use.	10633(g)		pps. 56-57
<b>WATER SHORTAGE RELIABILITY AND WATER SHORTAGE CONTINGENCY PLANNING <sup>b</sup></b>				
5	Describe water management tools and options to maximize resources and minimize the need to import water from other regions.	10620(f)		pps. 13-15
22	Describe the reliability of the water supply and vulnerability to seasonal or climatic shortage and provide data for (A) an average water year, (B) a single dry water year, and (C) multiple dry water years.	10631(c)(1)		pps. 28-37; Table 14, p. 31 Table 16, p.41
23	For any water source that may not be available at a consistent level of use - given specific legal, environmental, water quality, or climatic factors - describe plans to supplement or replace that source with alternative sources or water demand management measures, to the extent practicable.	10631(c)(2)		pps. 28-37
35	Provide an urban water shortage contingency analysis that specifies stages of action, including up to a 50-percent water supply reduction, and an outline of specific water supply conditions at each stage	10632(a)		Table 17, p. 42
36	Provide an estimate of the minimum water supply available during each of the next three water years based on the driest three-year historic sequence for the agency's water supply.	10632(b)		Table 14, p. 31

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
37	Identify actions to be undertaken by the urban water supplier to prepare for, and implement during, a catastrophic interruption of water supplies including, but not limited to, a regional power outage, an earthquake, or other disaster.	10632(c)		p. 38
38	Identify additional, mandatory prohibitions against specific water use practices during water shortages, including, but not limited to, prohibiting the use of potable water for street cleaning.	10632(d)		Table 17, p. 42
39	Specify consumption reduction methods in the most restrictive stages. Each urban water supplier may use any type of consumption reduction methods in its water shortage contingency analysis that would reduce water use, are appropriate for its area, and have the ability to achieve a water use reduction consistent with up to a 50 percent reduction in water supply.	10632(e)		Table 17, p. 42
40	Indicated penalties or charges for excessive use, where applicable.	10632(f)		pps. 42-43
41	Provide an analysis of the impacts of each of the actions and conditions described in subdivisions (a) to (f), inclusive, on the revenues and expenditures of the urban water supplier, and proposed measures to overcome those impacts, such as the development of reserves and rate adjustments.	10632(g)		p. 43
42	Provide a draft water shortage contingency resolution or ordinance.	10632(h)		Appendix D
43	Indicate a mechanism for determining actual reductions in water use pursuant to the urban water shortage contingency analysis.	10632(i)		p. 44
52	Provide information, to the extent practicable, relating to the quality of existing sources of water available to the supplier over the same five-year increments, and the manner in which water quality affects water management strategies and supply reliability	10634	For years 2010, 2015, 2020, 2025, and 2030	p. 16
53	Assess the water supply reliability during normal, dry, and multiple dry water years by comparing the total water supply sources available to the water supplier with the total projected water use over the next 20 years, in five-year increments, for a normal water year, a single dry water year, and multiple dry water years. Base the assessment on the information compiled under Section 10631, including available data from state, regional, or local agency population projections within the service area of the urban water supplier.	10635(a)		Table 14, p. 31; Table 16, p. 41 and related text.
DEMAND MANAGEMENT MEASURES				

No.	UWMP requirement <sup>a</sup>	Calif. Water Code reference	Additional clarification	UWMP location
26	Describe how each water demand management measures is being implemented or scheduled for implementation. Use the list provided.	10631(f)(1)	Discuss each DMM, even if it is not currently or planned for implementation. Provide any appropriate schedules.	pps. 44-56
27	Describe the methods the supplier uses to evaluate the effectiveness of DMMs implemented or described in the UWMP.	10631(f)(3)		pps. 44-56
28	Provide an estimate, if available, of existing conservation savings on water use within the supplier's service area, and the effect of the savings on the ability to further reduce demand.	10631(f)(4)		pps. 44-56
29	Evaluate each water demand management measure that is not currently being implemented or scheduled for implementation. The evaluation should include economic and non-economic factors, cost-benefit analysis, available funding, and the water suppliers' legal authority to implement the work.	10631(g)	See 10631(g) for additional wording.	pps. 44-56
32	Include the annual reports submitted to meet the Section 6.2 requirements, if a member of the CUWCC and signer of the December 10, 2008 MOU.	10631(j)	Signers of the MOU that submit the annual reports are deemed compliant with Items 28 and 29.	None Submitted

<sup>a</sup> The UWMP Requirement descriptions are general summaries of what is provided in the legislation. Urban water suppliers should review the exact legislative wording prior to submitting its UWMP.

<sup>b</sup> The Subject classification is provided for clarification only. It is aligned with the organization presented in Part I of this guidebook. A water supplier is free to address the UWMP Requirement anywhere with its UWMP, but is urged to provide clarification to DWR to facilitate review.

## **APPEDIX B**

### **BASELINE CALCULATIONS**

## Westborough Water District Baseline Calculations

Year	Population	Gross Water Use (mg)	GPCD	Baseline Water Use Calculation Period ending:							Current Water Use Period Ending:			
				2004	2005	2006	2007	2008	2009	2010	2007	2008	2009	2010
1994	12,589	323.58	70.4											
1995	12,663	324.30	70.2	70.2										
1996	12,737	370.73	79.7	79.7	79.7									
1997	12,811	353.67	75.6	75.6	75.6	75.6								
1998	12,885	358.93	76.3	76.3	76.3	76.3	76.3							
1999	12,959	370.65	78.4	78.4	78.4	78.4	78.4	78.4						
2000	13,033	372.03	78.2	78.2	78.2	78.2	78.2	78.2	78.2					
2001	13,064	371.34	77.9	77.9	77.9	77.9	77.9	77.9	77.9	77.9				
2002	13,095	324.54	67.9	67.9	67.9	67.9	67.9	67.9	67.9	67.9				
2003	13,126	359.84	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1	75.1			
2004	13,157	368.88	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8	76.8		
2005	13,190	363.70	76.1		76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	76.1	
2006	13,125	313.30	65.4			65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4	65.4
2007	13,725	355.9	71.0				71.0	71.0	71.0	71.0	71.0	71.0	71.0	71.0
2008	13,850	355.51	70.3					70.3	70.3	70.3		70.3	70.3	70.3
2009	13,950	318.17	62.5						62.5	62.5			62.5	62.5
2010	14,050	315.97	61.6							61.6				61.6
Calculated Baseline:				75.6	76.0	74.8	74.3	73.7	72.2	70.4	72.9	71.9	69.1	66.2

## **APPENDIX C**

### **SFPUC EMERGENCY RESPONSE PLAN DESCRIPTION**



## **SFPUC EMERGENCY RESPONSE PLANNING**

### **Planning, Training and Exercise**

Following San Francisco's experience with the 1989 Loma Prieta Earthquake, the SFPUC created a departmental *SFPUC Emergency Operations Plan (EOP)*. The *SFPUC EOP*, originally released in 1992, and has been updated on average every two years. The latest plan update will be released in Spring, 2011. The *EOP* addresses a broad range of potential emergency situations that may affect the SFPUC and that supplements the City and County of San Francisco's *Emergency Operations Plan* prepared by the Department of Emergency Management and most recently updated in 2008. Specifically, the purpose of the *SFPUC EOP* is to describe the department's emergency management organization, roles and responsibilities and emergency policies and procedures.

In addition, SFPUC divisions and bureaus have their own EOPs that are in alignment with the SFPUC EOP and describe each division's/bureau's specific emergency management organization, roles and responsibilities and emergency policies and procedures. The SFPUC tests its emergency plans on a regular basis by conducting emergency exercises. Through these exercises the SFPUC learns how well the plans will or will not work in response to an emergency. Plan improvements are based on exercise and sometime real world event response and evaluation. Also, the SFPUC has an emergency response training plan that is based on federal, state and local standards and exercise and incident improvement plans. SFPUC employees have emergency training requirements that are based on their emergency response role.

### **Emergency Drinking Water Planning**

In February 2005, the SFPUC Water Quality Bureau published a *City Emergency Drinking Water Alternatives* report. The purpose of this project was to develop a plan for supplying emergency drinking water in the City after damage and/or contamination of the SFPUC raw and/or treated water systems resulting from a major disaster. The report addresses immediate response after a major disaster. Since the publication of this report, the SFPUC has implemented a number of projects to increase its capability to support the provision of emergency drinking water during an emergency. These projects include:

- Public Information and materials for home and business
- Designation and identification of 67 emergency drinking water hydrants throughout San Francisco
- Purchase of emergency related equipment including water bladders and water bagging machines to help with distribution post disaster
- Coordinated planning with City Departments, neighboring jurisdictions and other public and private partners to maximize resources and supplies for emergency response

With respect to emergency response for the SFPUC Regional Water System, the SFPUC has prepared the *SFPUC Regional Water System Emergency Response and Recovery Plan* (ERRP), completed in 2003 and updated in 2006. The purpose of this plan is to describe the SFPUC RWS emergency management organizations, roles and responsibilities within those organizations, and emergency management procedures. This contingency plan addresses how to respond to and to recover from a major RWS seismic event, or other major disaster. The ERRP complements the other SFPUC emergency operations plans at the Department, Division and Bureau levels for major system emergencies.

The SFPUC has also prepared in an *SFPUC-Suburban Customer Water Supply Emergency Operations and Notification Plan*. The plan was first prepared in 1996 and has been updated several times – most recently in July of 2010. The purpose of this plan is to provide contact information, procedures and guidelines to be implemented by the following entities when a potential or actual water supply problem arises: the SFPUC Water Supply and Treatment Division (WS&TD), Water Quality Bureau (WQB), and SFPUC wholesale customers, BAWSCA, and City Distribution Division (CDD – considered to be a customer for the purposes of this plan). For the purposes of this plan, water quality issues are treated as potential or actual supply problems.

### **Power Outage Preparedness and Response**

SFPUC's water transmission system is primarily gravity fed, from the Hetch Hetchy Reservoir to the City and County of San Francisco. Within San Francisco's in-city distribution system, the key pump stations have generators in place and all others have connections in place that would allow portable generators to be used.

Although water conveyance throughout the RWS would not be greatly impacted by power outages because it is gravity fed, the SFPUC has prepared for potential regional power outages as follows:

- The Tesla disinfection facility, the Sunol Valley Water Treatment Plant, and the San Antonio Pump Station, have back-up power in place in the form of generators or diesel powered pumps. Additionally, both the Sunol Treatment Plant and the San Antonio Pump Station would not be impacted by a failure of the regional power grid because it runs off of the SFPUC hydro-power generated by the RWS.
- Both the Harry Tracy Water Treatment Plant and the Baden Pump Station have back-up generators in place.
- Additionally, as described in the next section, the WSIP includes projects which will expand the SFPUC's ability to remain in operation during power outages and other emergency situations.

### **Capital Projects for Seismic Reliability and Overall System Reliability**

As discussed in Section III, D of this UWMP, the SFPUC is also undertaking a WSIP in order to enhance the ability of the SFPUC water supply system to meet identified service goals for water quality, seismic reliability, delivery reliability, and water supply. The WSIP projects include

several projects located in San Francisco to improve the seismic reliability of the in-city distribution system, as well as many projects related to the SFPUC RWS to address both seismic reliability and overall system reliability. All WSIP projects are expected to be completed by 2016.

In addition to the improvements that will come from the WSIP, San Francisco has already constructed the following system interties for use during catastrophic emergencies, short-term facility maintenance and upgrade activities, and in times of water shortages:

- A 40 mgd system intertie between the SFPUC and the Santa Clara Valley Water District (Milpitas Intertie); and
- One permanent and one temporary intertie to the South Bay Aqueduct, which would enable the SFPUC to receive State Water Project water.

The WSIP includes intertie projects, such as the EBMUD-Hayward-SFPUC Intertie. The SFPUC and EBMUD have completed construction of this 30 mgd intertie between their two systems in the City of Hayward, as part of the WSIP.

The WSIP also includes projects related to standby power facilities at various locations. These projects will provide for standby electrical power at six critical facilities to allow these facilities to remain in operation during power outages and other emergency situations. Permanent engine generators will be provided at four locations (San Pedro Valve Lot, Millbrae Facility, Alameda West, and Harry Tracy Water Treatment Plant), while hookups for portable engine generators will be provided at two locations (San Antonio Reservoir and Calaveras Reservoir).

## **APPENDIX D**

### **SAMPLE WATER RATIONING PLAN**

The following is a copy of the Water Rationing Plan considered by the Board of Directors in May 1991. It could serve as a model for any future water rationing programs that have to be adopted by the District.

ORDINANCE NO. 32

AN ORDINANCE ESTABLISHING RULES AND REGULATIONS  
FOR RATIONING WATER DURING A WATER SHORTAGE EMERGENCY  
AND ESTABLISHING PENALTIES FOR VIOLATIONS THEREOF

BE IT ORDAINED BY THE BOARD OF DIRECTORS OF THE  
WESTBOROUGH WATER DISTRICT AS FOLLOWS:

Section 1: FINDINGS AND DETERMINATIONS

The BOARD OF DIRECTORS of WESTBOROUGH WATER DISTRICT  
hereby finds and determines that:

A. The District obtains all of its water from the  
San Francisco Water Department and is entirely dependent on the  
San Francisco Water Department supply source for its water.

B. The San Francisco Public Utilities Commission  
has, on February 26, 1991 found that "due to critically low supplies  
of water within the reservoirs and anticipated low levels of  
inflow into such reservoirs" water consumption must be decreased  
and has declared a water shortage emergency and adopted a water  
conservation program under which the amount of water allocated to  
the District will be reduced by approximately 45% of the 1987  
allocations.

C. As a result of the actions of the San Francisco  
Public Utilities Commission, a water shortage emergency condition  
prevails within the area served by the District.

D. The rules, regulations and restrictions set forth  
in this Ordinance are intended to conserve the water supply of the  
District for the greatest public benefit with particular regard to  
domestic use, sanitation and fire protection.

E. The specific uses prohibited or restricted by  
this Ordinance are nonessential, if allowed would constitute  
wastage of District water, and should be prohibited pursuant to  
the District's authority under Water Code Section 350 et seq.,  
Water Code Section 31026 et seq. and the common law.

F. The actions taken hereinafter are exempt from the  
provisions of Sections 21000 et seq. of the Public Resources Code as  
a project undertaken as immediate action necessary to prevent or  
mitigate an emergency pursuant to Title 14,  
California Administrative Code Section 15269, and as a project  
undertaken to assure the maintenance, restoration or enhancement  
of a natural resource pursuant to Title 14, California Code of  
Regulations Section 15307.

## Section 2: DEFINITIONS

- A. "District" means WESTBOROUGH WATER DISTRICT.
- B. "General Manager" means the General Manager of the District.
- C. "Person" means any person, firm partnership, association, corporation, company, organization or governmental entity.
- D. "Customer" means any person, whether within or without the geographic boundaries of the District, who uses water supplied by the District.

## Section 3: PROHIBITION OF NONESSENTIAL WATER USE

It shall be unlawful for any person to use water obtained from the water system of the District for nonessential uses as hereinafter defined in Sections 4 and 5.

## Section 4: NONESSENTIAL USES; ALLOCATIONS

Use of District water in excess of the allocations set forth below is hereby determined to be nonessential.

- A. Each single family residential meter shall receive an allocation for each bimonthly billing period as follows:

Meter Size	<u>July/Aug</u>	<u>Sept/Oct</u>	<u>Nov/Dec</u>	<u>Jan/Feb</u>	<u>Mar/Apr</u>	<u>May/June</u>
5/8"	13	13	13	13	13	13

(Allocations In Hundred Cubic Feet (1 HCF = 748 gals.)

- B. Each irrigation meters except median meters shall receive an allocation in the amount of 10% of 1987 usages or the 1990 bi-monthly usage, whichever is less.

- C. Each median meter shall receive a zero allocation.

- D. Each commercial meter shall receive an allocation equal to 68% of the 1987 usage or the 1990 bi-monthly usage whichever is less.

- E. Each multi-residential meter shall receive an allocation equal to 150 gallons/unit/day times the total number of units in the building or the 1990 bi-monthly usage, whichever is less.

## Section 5: NONESSENTIAL USES; GENERAL PROHIBITIONS



The following uses for District water are hereby determined to be nonessential and therefore prohibited:

A. Use of water through any meter when the customer has been given 5 days notice to repair broken or defective plumbing, sprinkler, watering or irrigation systems and has failed to effect such repairs.

B. Use of water which results in flooding or runoff in gutters or streets.

C. Use of water for washing any automobiles, motorcycles, RV's trucks, transit vehicles, trailers, boats, trains and airplanes, outside of commercial washing facility. Exceptions to this restriction are (1) washing windows on all vehicles and (2) washing commercial or safety vehicles requiring cleaning for health or safety reasons (i.e. garbage trucks, food delivery vehicles, ambulances etc.)

D. Use of water for washing sidewalks, walkways, driveways, patios, parking lots, tennis courts, or other hard-surfaced areas.

E. Use of water to clean, fill or maintain levels in decorative fountains.

F. Use of water for all cooling purposes and for commercial car washes (recycled water may be used).

G. Service of water by restaurants except upon the specific request of a customer.

H. Use of water for landscape areas planted after the date of this Ordinance.

I. Use of water for consolidation of backfill, dust control or other non-essential construction purposes. The use of groundwater and/or reclaimed water is permitted when approved by the Department of Health.

J. Irrigation of lawns, playfields, parks, and landscaping of any type with potable water shall be reduced to the amount specified in the Ordinance.

K. The filling of new swimming pools, spas, hot tubs or the draining and refilling of existing pools, spas or hot tubs. Topping off such facilities will be allowed to the extent that the designated allocation is not exceeded.

L. Use of water for the irrigation of median strips. The use of groundwater and/or reclaimed water is permitted when approved by the Department of Public Health.

M. The use of water for street sweepers/washers. The use of groundwater and/or reclaimed water is permitted when approved by the Department of Public Health.

## Section 6: EXCEPTIONS

Written application for an exception to water use restrictions (Section 5) or for an adjustment to an allocation (Section 4) may be made to the Citizen's Review Panel (CRP) on a form provided by the District.

The CRP may grant an exception or adjust an allocation if the CRP finds that (a) failure to do so will adversely affect the health, sanitation, fire protection, or safety of the customer or the public, or (b) failure to do so would cause an unnecessary and undue hardship to the customer or the public, such as loss of jobs in the community. The CRP may condition the exception or adjustment that the customer adopt practical water conservation measures.

A customer may appeal a decision of the CRP to the General Manager. To do so, he or she must submit a written statement of the reason for the appeal, together with evidence in support of it. The General Manager's decision may be appealed to the Board of Directors upon written request by the customer.

## Section 7: EXCESS WATER USE CHARGE

An excess use charge shall be imposed on water used in excess of a customer's allocation, during each billing period, as follows:

<u>Amount in Excess of Allocation</u>	<u>Use Charge</u>
Up to 14.9% over the allotment	\$ 6.50 per HCF
15% and over the allotment	\$ 13.00 per HCF

## Section 8: ENFORCEMENT

### A. Installation of Flow-Restricting Devices

In lieu of or in addition to the penalties provided for in Section 356 and Section 31029 of the Water Code the District shall, after a customer receives excess use charges on two consecutive bills, install a flow restricting device in the service line of the customer. A third consecutive excess use charge may result in the termination of water service.

The following charges shall be imposed for installation of a flow restricting device:

<u>Meter Size</u>	<u>Removal Charge</u>
5/8" to 1"	\$ 50.00
1" to 2"	\$100.00
3" and larger	actual cost but in no event less than \$100.00*

\* Actual cost shall include all material, labor, equipment and overhead charges.



First installation to be a minimum of 3 days; any succeeding installation to be a minimum of 10 days, as determined by the General Manager.

B. Reduction of Allocation

Verified water waste as determined by the District will serve as prima facie evidence that the allocation assigned to the water account is excessive; therefore the allocation will be subject to review and possible reduction, including termination of service.

C. Discontinuance of Water Service

Bypassing or removing a flow restrictor or continued water consumption in excess of the allocation may result in the discontinuance of water service by the District. A charge of \$100 shall be paid prior to reactivating the service.

Section 9: EFFECTIVE DATE

The effective date of this Ordinance shall take effect for billing periods after April 30, 1991.

Section 10: RESCISSION

This Ordinance shall be rescinded and be of no further force and effect as of the effective date that the City and County of San Francisco suspends or cancels its water rationing program and eliminates the drought surcharge imposed on water sales to the Westborough Water District.

Section 11: REPEAL OF ORDINANCE NO. 30

Ordinance No. 30 of the District hereby is repealed.

Section 12: PUBLICATION

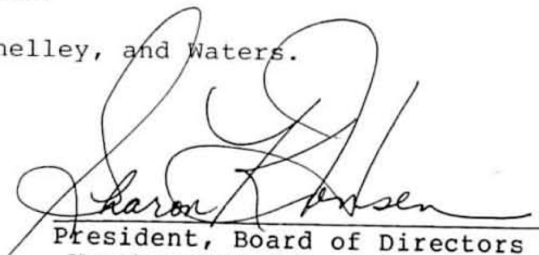
The Secretary is hereby directed to publish this Ordinance for the period and in the manner required by Water Code Section 31027.

PASSED AND ADOPTED at a meeting of the Board of Directors of WESTBOROUGH WATER DISTRICT duly held on the 1st day of April, 1991, by the following vote:


AYES: Bautista, Hansen, Shelley, and Waters.

NOES: None

ABSENT: None

  
President, Board of Directors  
Westborough Water District

ATTEST:

  
Secretary of Said District

## **APPENDIX E**

### **NOTICES AND RESOLUTION OF ADOPTION**



# The Water Faucet

March 2011

Check out our website. You can obtain water conservation information and rebate forms!

[www.westboroughwater.com](http://www.westboroughwater.com)

Free dye strips to test for toilet leaks are available at the District Office.



Westborough Water District

P.O. Box 2747  
So. SF, CA 94083-2747

24-Hour Telephone No.  
(650) 589-1435

Fax (650) 589-5167  
e-mail address:

[wwd@westboroughwater.com](mailto:wwd@westboroughwater.com)

## Sewer Service Charge on Property Tax Bill

The amount of water you consumed during January & February 2011 meter reading period will be used to determine your annual sewer charge on your property tax bill effective July 1, 2011. **If you experienced high usage during this period due to an emergency or uncontrollable event, please submit a written request with proper documentation of the repair to the District for possible adjustment no later than May 2, 2011.** ☎

## Future Water Rates

The latest rate projection by the San Francisco Water Department presented to San Francisco Public Utilities Commission projects a \$0.78 increase for 2011/2012 Fiscal Year. The SFPUC has stated that the rate increase is largely due to continued lagging water sales.

Rate projection as follows:

Fiscal Year	Current Rate	Projected Rate
2011-12	\$3.32	\$4.10

## 50<sup>th</sup> Anniversary Celebration

50<sup>th</sup> ANNIVERSARY  
CELEBRATION

The Westborough Water District would like to invite you to our **50<sup>th</sup> Anniversary of the Westborough Water District Celebration** **11 a.m. to 2 p.m., Saturday, April 2, 2011**, at the Westborough Community Center on Westborough Boulevard at Galway Drive. Free Food and refreshments will be served. Stop by and pick up water conservation items and meet the board members to find out what's going on in your district. ☎

## Review of Urban Water Management Plan

The Westborough Water District is required to update its Urban Water Management Plan by June 30, 2011. We are in the process of reviewing our current Plan, which was last updated in 2005, and making any necessary revisions.

We will make the proposed revisions to our Plan available for public review and hold a public hearing this year. In the meantime, if you have any questions about our Plan or the process for updating it, please contact us. ☎



## Do You Need A Notary Public?

#### **YOUR DISTRICT:**

The Westborough Water District board meetings are held on the second Thursday of every month at the District office. The meeting begins at 7:30 p.m. and the public is encouraged to attend.

The current Board members are:

**President:**  
Perry Bautista

**Vice President:**  
William Lopez

**Directors:**  
Tom Chambers, Robert Craig, and Janet Medina.

The District has a Notary Public on duty that can notarize documents you may have for a fee of \$10 per signature. Feel free to take advantage of this service.

We recommend you call in advance to make sure notary is available. ☎

### **Free Spring 2011 Landscape Classes**

Landscape education classes are offered March, April and May. Some of the topics covered include water efficient landscape design, planting with native plants, habitat, kid friendly plants, edible plants, lawn replacement, and drip irrigation. The following is a link to the spring class schedule:



[http://bawsc.org/docs/BAWSCA\\_Spring2011\\_LandscapeClass\\_Flyer.pdf](http://bawsc.org/docs/BAWSCA_Spring2011_LandscapeClass_Flyer.pdf)

### **Don't Allow Pollutants To Destroy Our Bay!**



#### **You are the solution to water pollution!**

Storm water pollution comes from motor oil, auto fluids, antifreeze, paint, household cleaners dumped in the gutter, air pollution carried by rain, as well as weed killers, fertilizers and pesticides that are washed off lawns.

You can recycle cooking oil and grease for free at the North San Mateo County Wastewater Treatment Plant located at 153 Lake Merced Boulevard in Daly City. You are the solution to water pollution!

**Waste Alert** - Contact: California Environmental Protection Agency (800) 69-TOXIC. ☎

Westborough Water District  
PUBLIC HEARING ON URBAN WATER USE TARGETS IN  
URBAN WATER MANAGEMENT PLAN

California law requires that, in conjunction with our update to our Urban Water Management Plan, the community be given an opportunity to give input on Westborough Water District's urban water use target in the Urban Water Management Plan, any impacts to the local economy, and Westborough's method of determining its urban water use target. The Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2010-2015. The hearing will be held:

7:30 p.m. on June 9, 2011,  
at the District Office  
2263 Westborough Boulevard  
South San Francisco, 94080

The proposed update to the Plan is available for public review at District Office located at 2263 Westborough Boulevard, South San Francisco, CA 94080.

Date: May 28, 2011

**Westborough Water District**

**UPDATE OF URBAN WATER MANAGEMENT PLAN**

Westborough Water District will be reviewing and updating our Urban Water Management Plan during 2010 and 2011. The Plan was last updated in 2005. We encourage all of our customers to participate in this review process. We will make any proposed revisions to the Plan available for public review and will hold a public hearing in 2011. In the meantime, if you would like to learn more about the current Plan, the schedule for considering changes to it, or how to participate in the process, please contact:

**Darryl Barrow**  
**2263 Westborough Boulevard**  
**South San Francisco, CA 94080**  
**Email address: [waterwwd@aol.com](mailto:waterwwd@aol.com)**  
**(650) 589-1435**  
**(650) 589-5167**

Date: May 28, 2011  
SMCT#3995870

May 28, June 4, 2011

**Westborough Water District**  
**PUBLIC HEARING ON**  
**URBAN WATER USE TARGETS IN**  
**URBAN WATER MANAGEMENT PLAN**

California law requires that, in conjunction with our update to our Urban Water Management Plan, the community be given an opportunity to give input on Westborough Water District's urban water use target in the Urban Water Management Plan, any impacts to the local economy, and Westborough's method of determining its urban water use target. The Board of Directors will hold a public hearing to adopt an urban water use target and updates to its Urban Water Management Plan for 2010-2015. The hearing will be held:

**7:30 p.m. on June 9, 2011,**  
**at the District Office**  
**2263 Westborough Boulevard**  
**South San Francisco, 94080**

The proposed update to the Plan is available for public review at District Office located at 2263 Westborough Boulevard, South San Francisco, CA 94080.

Date: May 28, 2011  
SMCT#3995838

May 28, June 4, 2011



**RESOLUTION NO. 562**

**ADOPTING URBAN WATER MANAGEMENT PLAN**

**WESTBOROUGH WATER DISTRICT**

**WHEREAS**, the Urban Water Management Planning Act (California Water Code Sections 10610, et. seq.) requires each urban water supplier, such as the Westborough Water District, to prepare and adopt an Urban Water Management Plan ("Plan"); and

**WHEREAS**, the Urban Water Management Planning Act requires that each urban water supplier update its Plan at least once every five years; and

**WHEREAS**, the District engaged the firm of Donaldson Associates to prepare the Plan for the District; and

**WHEREAS**, the District has made the Plan available for public inspection and has held a public hearing regarding the Plan as required by California Water Code Section 10642.

**NOW, THEREFORE, BE IT RESOLVED** that the Board of Directors of the Westborough Water District hereby approves and adopts as the Urban Water Management Plan for the District the document entitled "Urban Water Management Plan, Including a Water Shortage Contingency Plan, 2011-2015" as presented to the Board and attached to this Resolution.

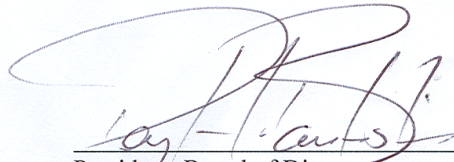
**BE IT FURTHER RESOLVED** that the General Manager is authorized and directed to file a copy of the adopted Plan with the Department of Water Resources within 30 days of its adoption as required by Water Code Section 10644.

PASSED AND ADOPTED this 9<sup>th</sup> day of June, 2011, by the following vote:

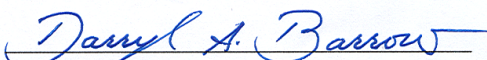
AYES: Bautista, Chambers, Craig, and Medina.

NOES: None.

ABSENT: Lopez.

  
\_\_\_\_\_  
President, Board of Directors

ATTEST:

  
\_\_\_\_\_  
Board Secretary